

# TouchPAD

## TPD/VPD Series HMI Devices Getting Started

Version: 1.0.1      August, 2011



### Usage information for

TPD-280  
TPD-280U  
TPD-283  
TPD-430  
TPD-430-EU  
VPD-130  
VPD-130N

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# Chapter 1. Introduction

TPD-280/280U/283/430/430-EU and VPD-130/130N are the TouchPAD series with tiny touch HMI and designed for building and home automation. TouchPAD is equipped with high resolution TFT color touch screen and fits in with regular electrical wall-mount outlet. Besides, it is seamlessly integrated with rich I/O modules and presents beautiful, flexible and user-defined picture frame. In short, the TouchPAD is the best choice to upgrade the mechanical switch to intelligent control pads.

For PLC users, HMIWorks provides Ladder Designer, and for IT users, C language environment is provided. Especially, it only takes no more than 30 minutes to learn how to create an application program of TouchPAD devices when using Ladder Designer. Moreover, we provide redundant solutions in our PoE version, TPD-283, of TouchPAD HMI devices. With all the features provided, TouchPAD touch HMI devices might be the most cost effective HMI device that has been found.

**Note:** The usage of TPD-430, TPD-430-EU and TPD-280U are the same.

## ***TouchPAD :***



TPD Series  
( 2.8" Touch Screen )



TPD Series  
( 4.3" Touch Screen )



VPD Series  
( 3.5" Touch Screen )

# 1.1 Hardware

If you want to know the hardware specifications for various models of TouchPAD, please refer to our website:

[www.icpdas.com.tw](http://www.icpdas.com.tw) > [Product](#) > [Solutions](#) > [HMI & Touch Monitor](#) > [TouchPAD](#)

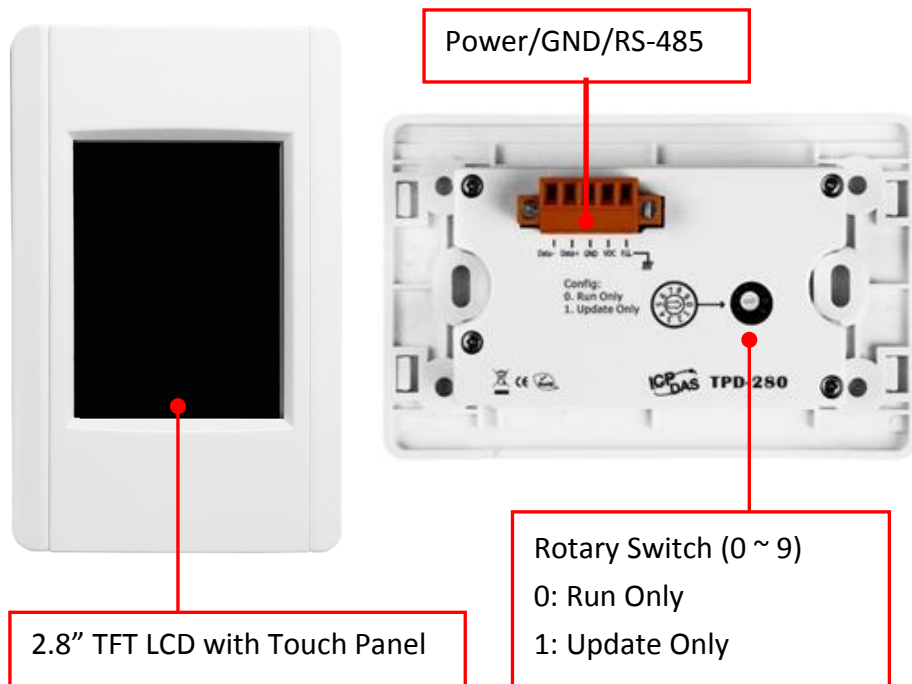
or

[http://www.icpdas.com.tw/product/solutions/hmi\\_touch\\_monitor/touchpad/touchpad\\_selection.html](http://www.icpdas.com.tw/product/solutions/hmi_touch_monitor/touchpad/touchpad_selection.html)

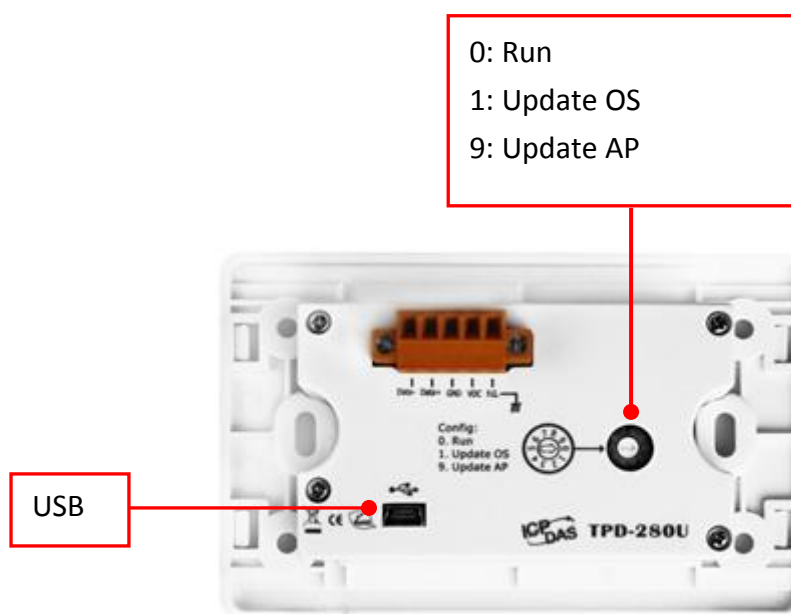
## 1.2 Hardware Overview

### TPD Series

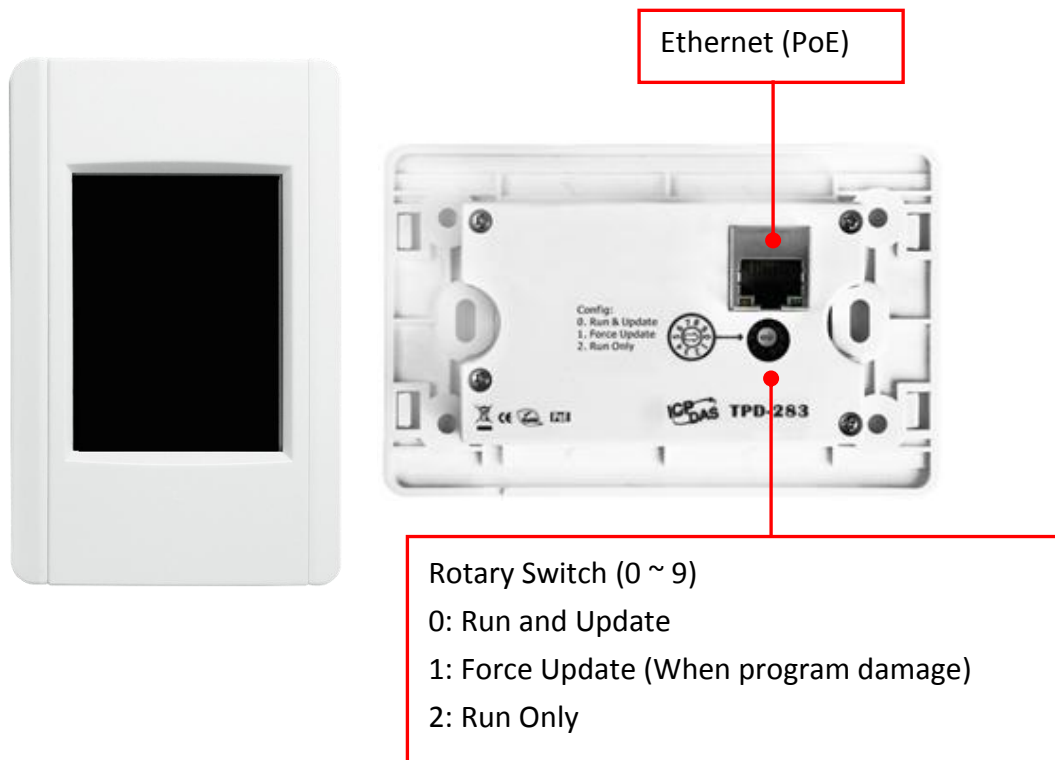
#### TPD-280:



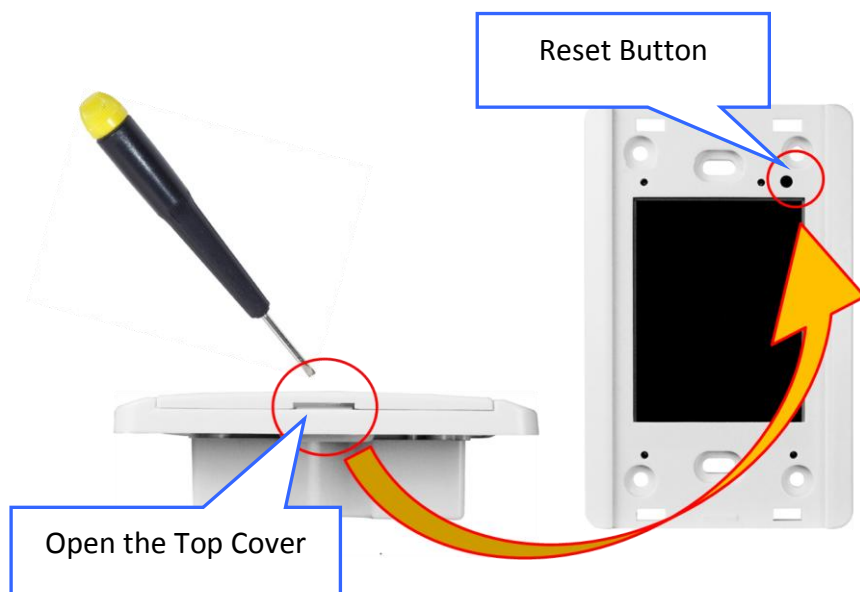
#### TPD-280U:



## **TPD-283:**



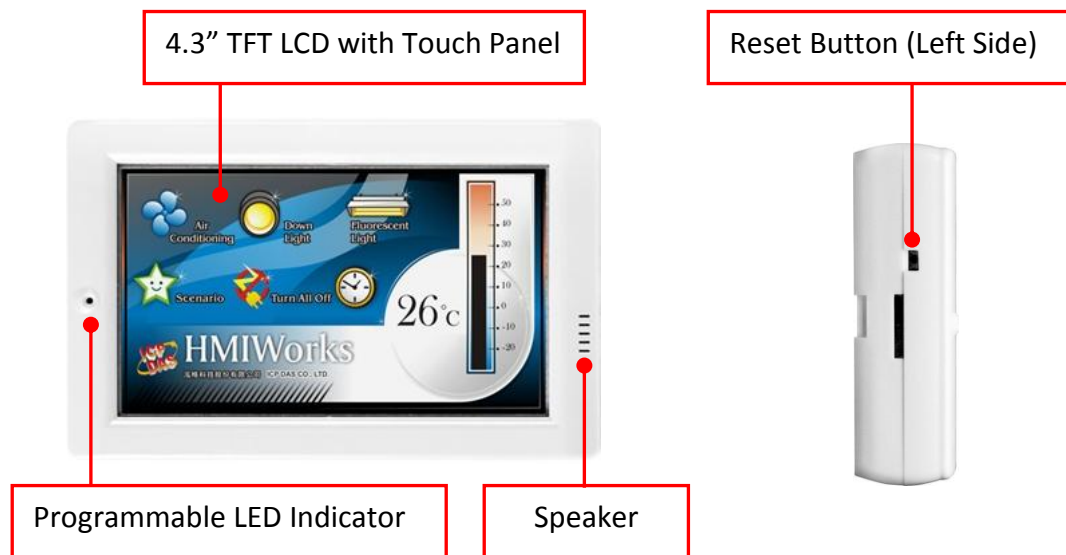
## **Reset TouchPAD Button**





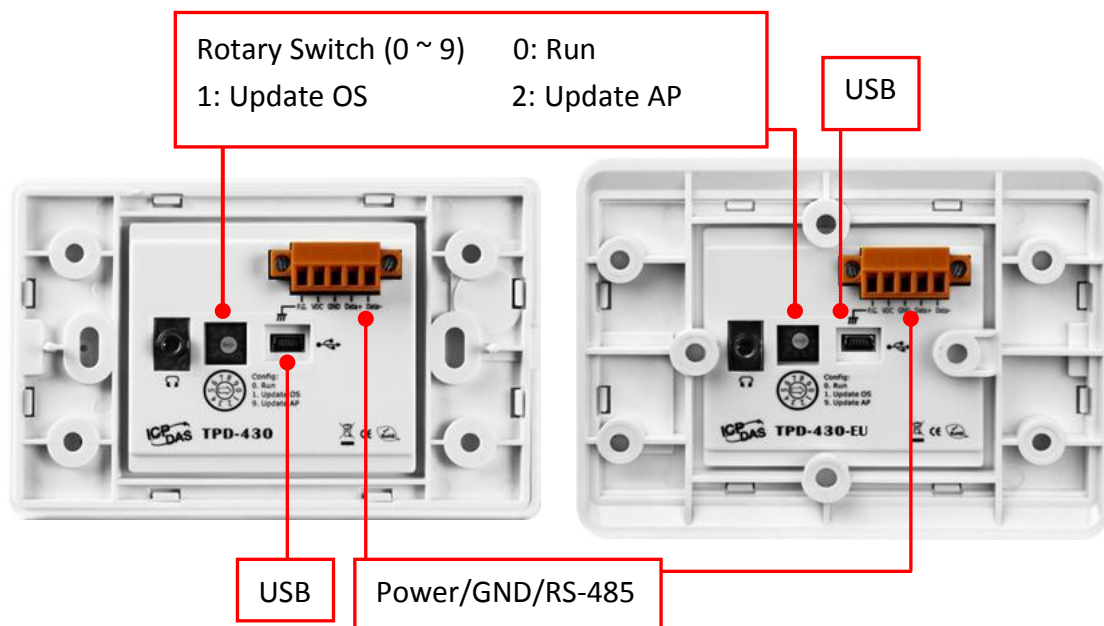
## TPD-430 、 TPD-430-EU:

The different between TPD-430 and TPD-430-EU is the size of appearance which divided into U.S. gauge and European gauge.



### TPD-430:

### TPD-430-EU:

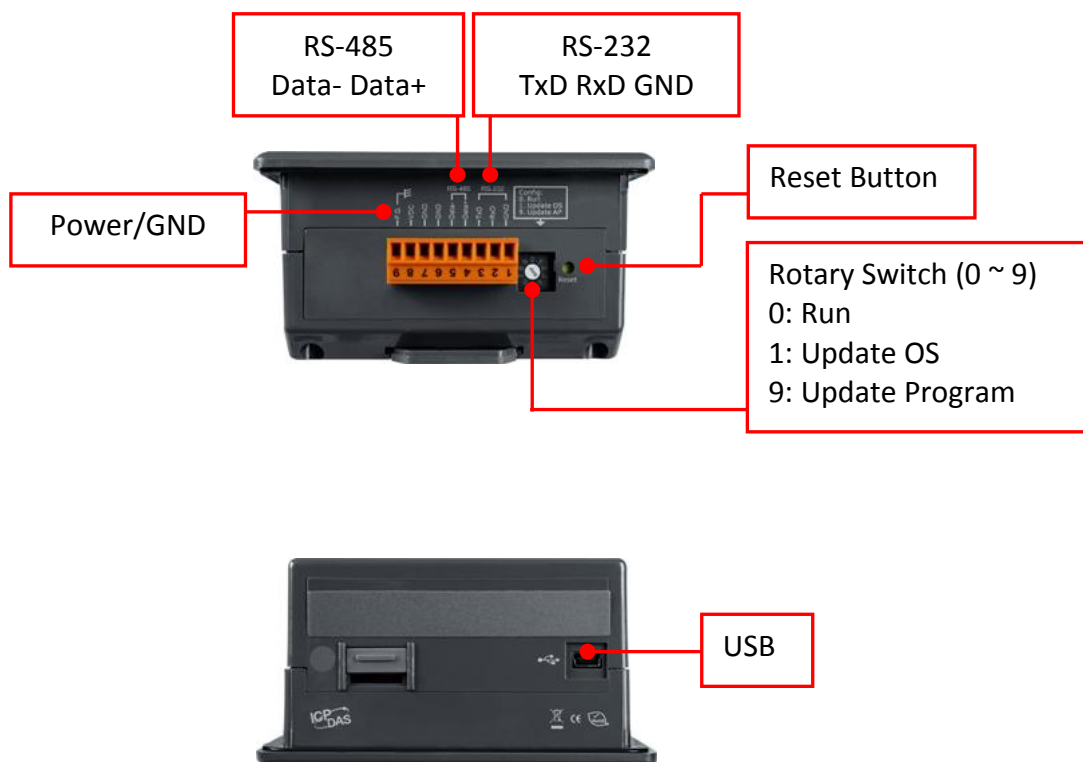


## VPD Series

### VPD-130:



### VPD-130N:



# Chapter 2. Software Installation

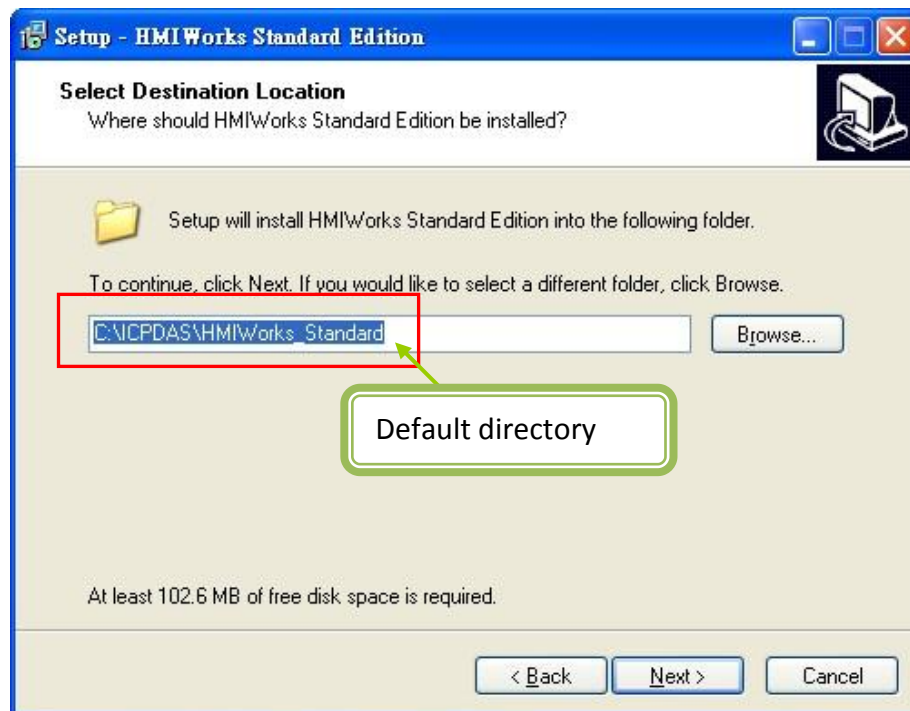
First, install the HMIWorks development software in your PC. Please download the latest version at the website: <http://ftp.icpdas.com/pub/cd/touchpad/setup/>

## 2.1 Install the HMIWorks

Step 1: Double click the execution file to install the HMIWorks software.  
(This manual use V2.01 beta5 )

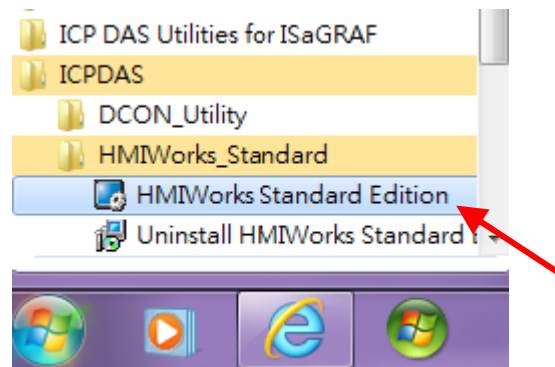


Step 2: Follow the setup wizard and click “Next” to complete the installation.



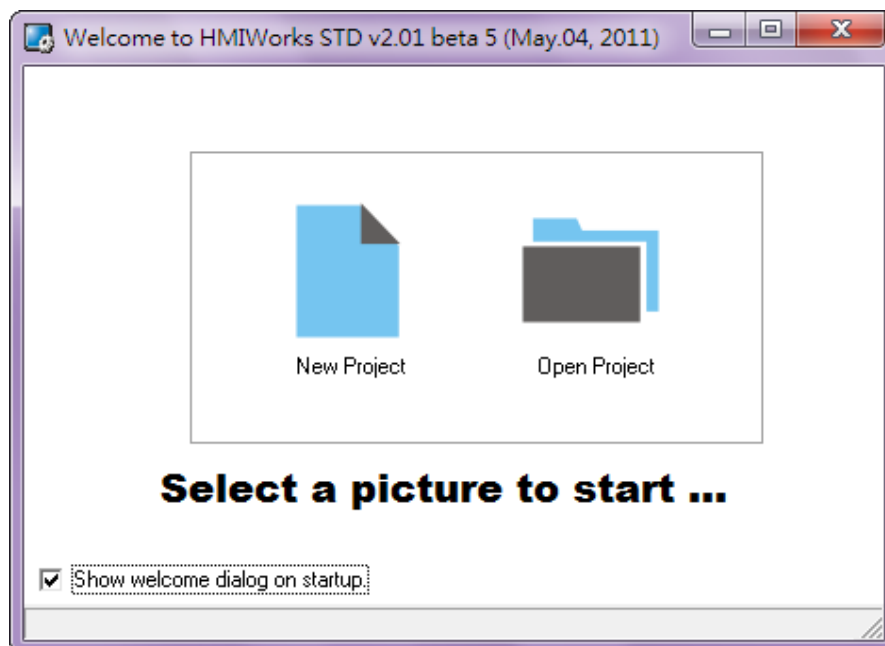
## 2.2 Create a New Project

Step 1: After the HMIWorks installation, select [ Start ] > [ All Programs ] > [ ICPDAS ] > [ HMIWorks\_Standard ] > [ HMIWorks Standard Edition ] to execute the software.

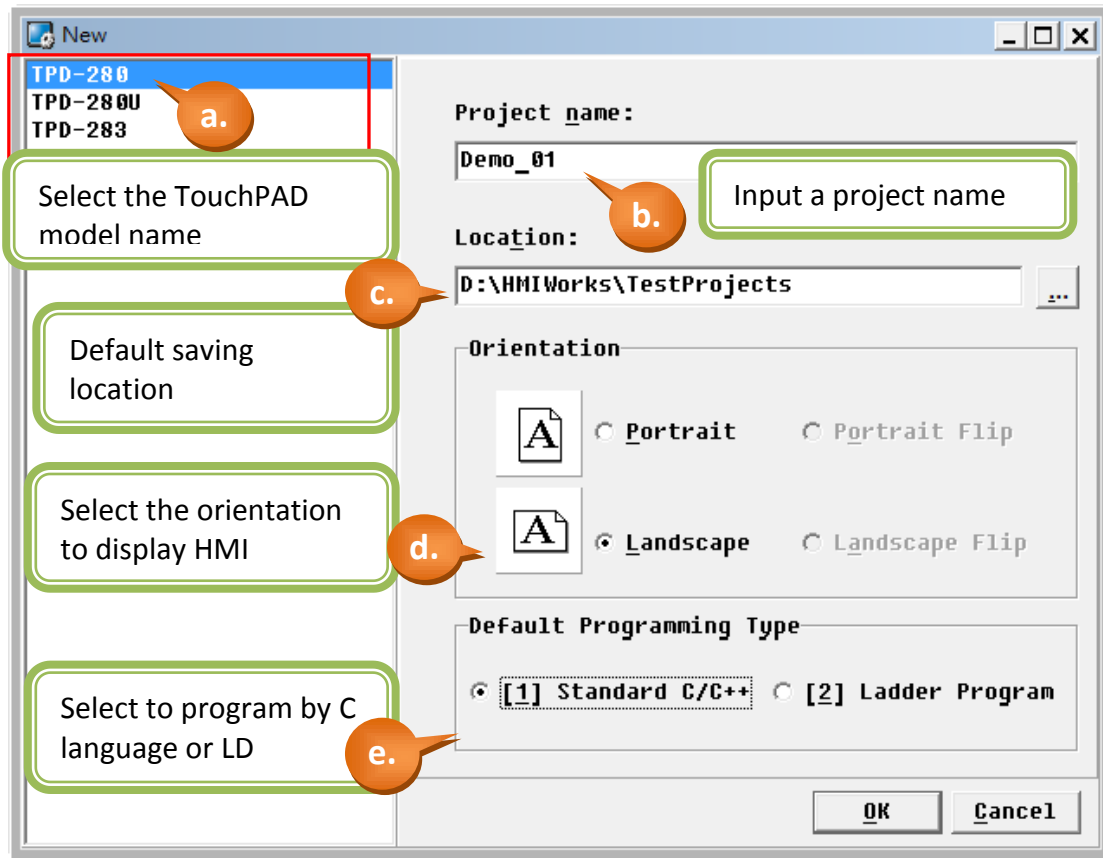


(If the Windows Security Warning dialog appears in the Windows 7, please click “Unlock”).

Step 2: Select “New Project” to create a new project.

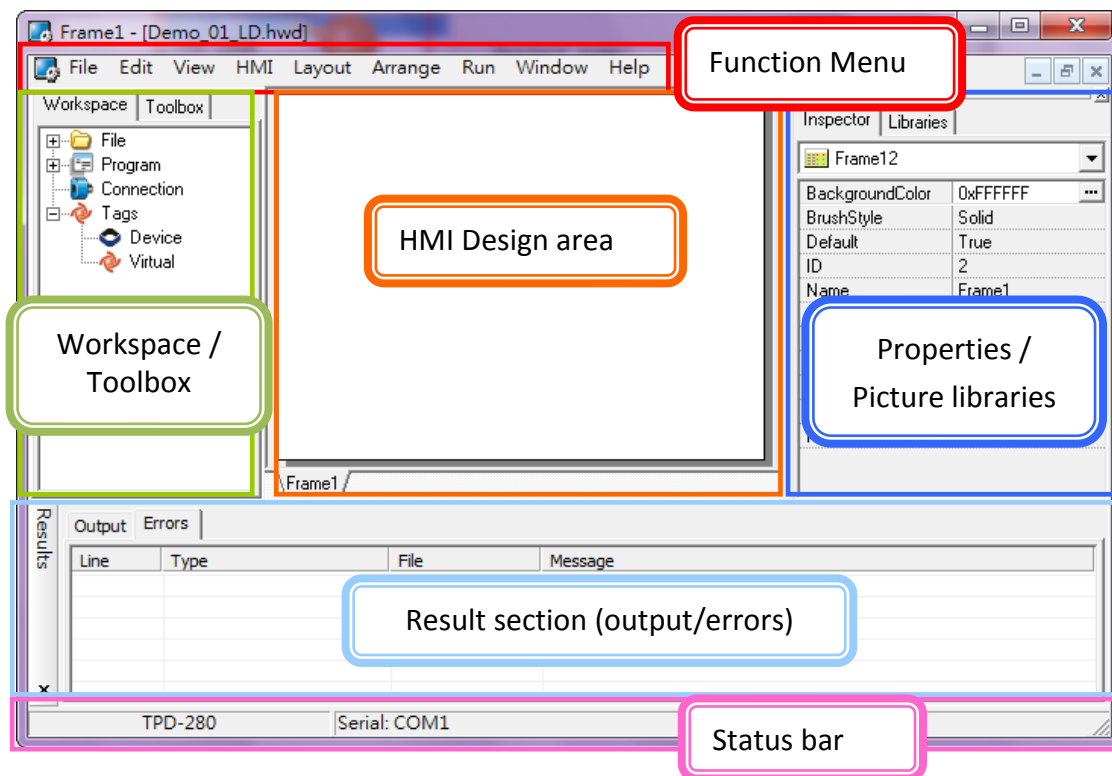


Step 3: Select the TouchPAD model name, input a project name & its saving location, select the display orientation and programming type.

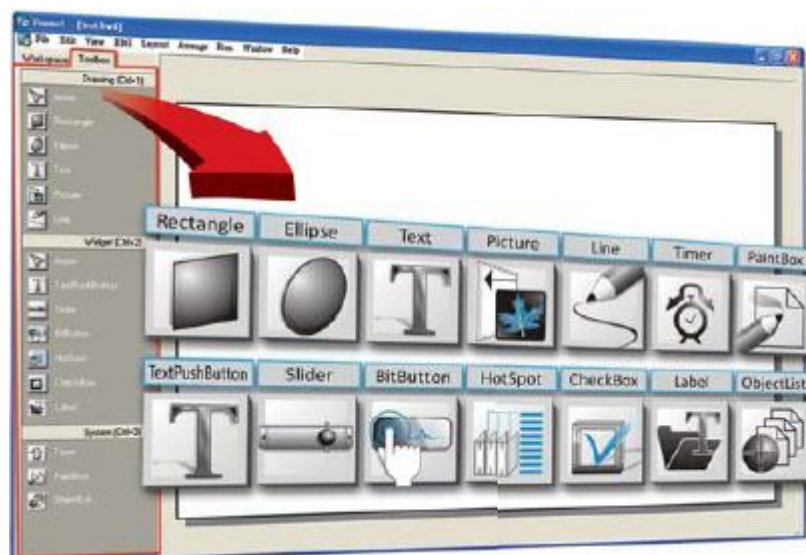


NOTE : If a wrong TouchPAD model is selected, it will cause the program mistakes and cannot download the project.

## 2.3 HMIWorks Working Environment



Toolbox :



# Chapter 3. Demo Programs

In this chapter, we will guide you to write simple demo programs in C or LD language.

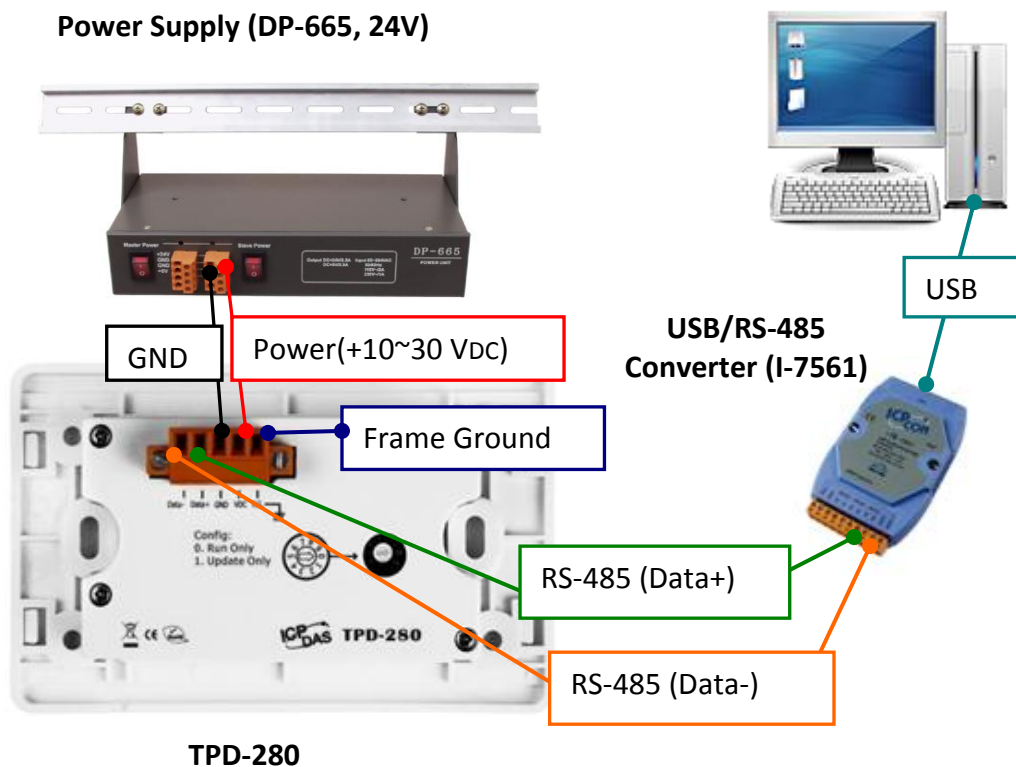
Before programming, please install the hardware and the software ([Chapter 2](#)).

## 3.1 Demo 0 (Beep & Count, using Ladder Designer)

**Demo 0** is programmed using the Ladder Designer to implement one button that will beep when click on it and add one to a counter and reset to zero when the counter comes up to 10.

### Hardware Devices :

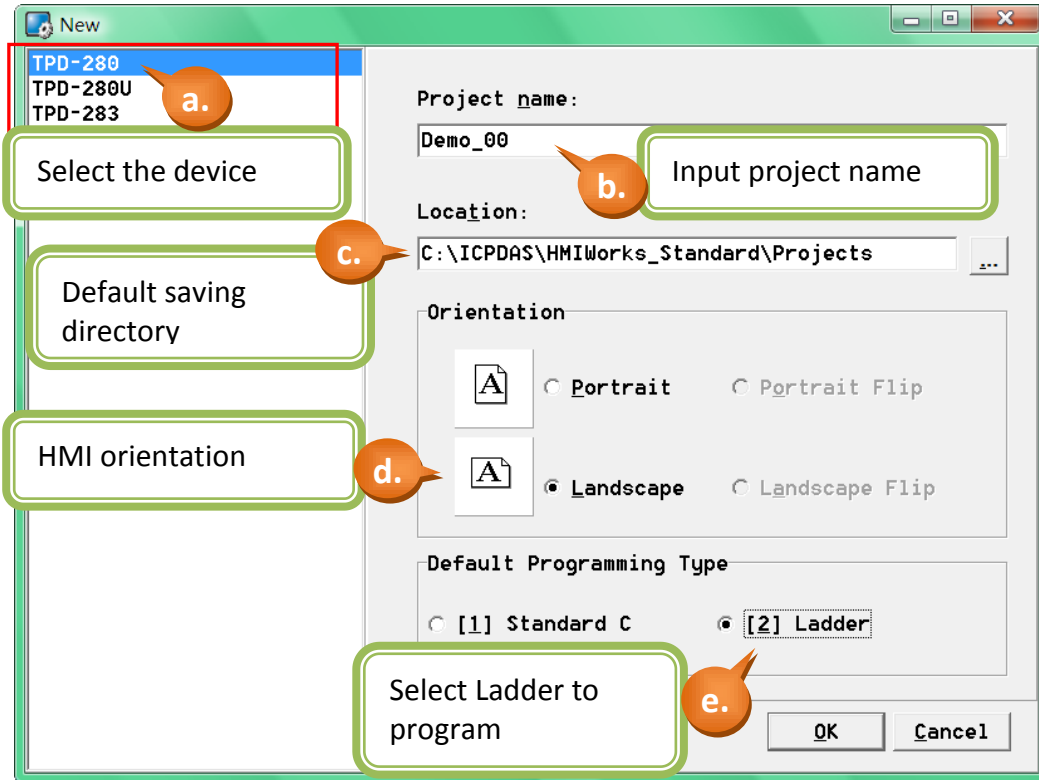
Using TPD-280 for demo example 0



For information about the driver download of I-7561 module and the hardware configuration of I/O modules, please refer to [Appendix A](#) and [Appendix B](#).

### 3.1.1 HMI Page Design

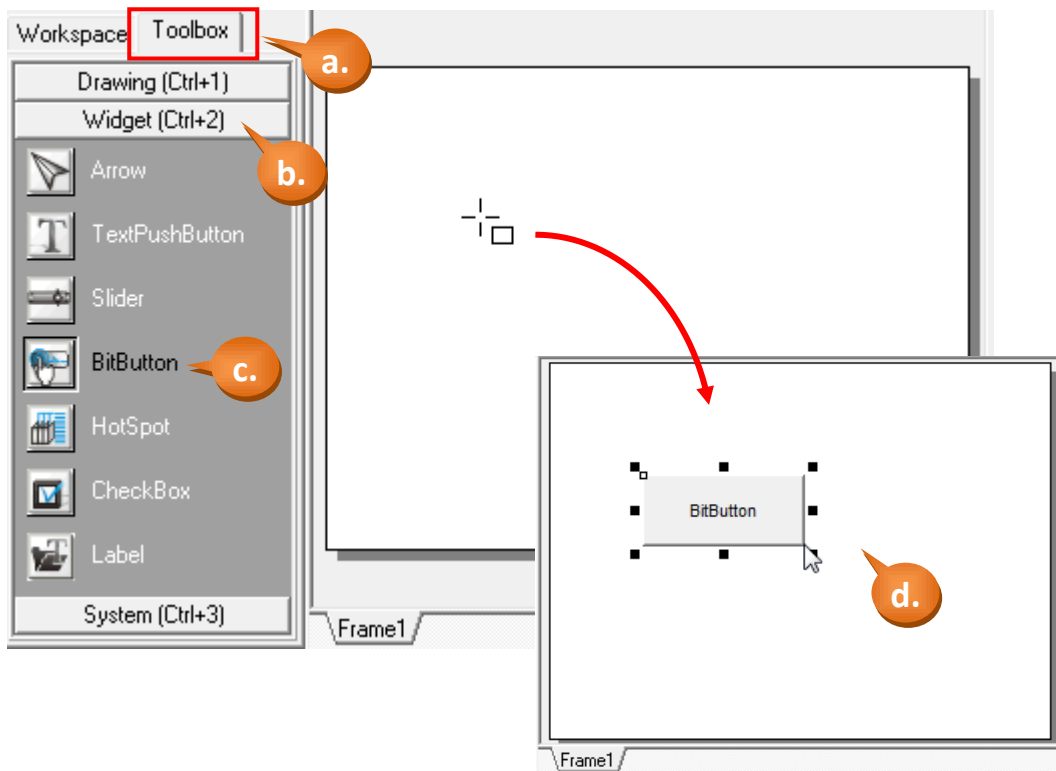
Step 1: Create a new TPD-280 project using Ladder Designer (refer to [Section 2.2](#)).



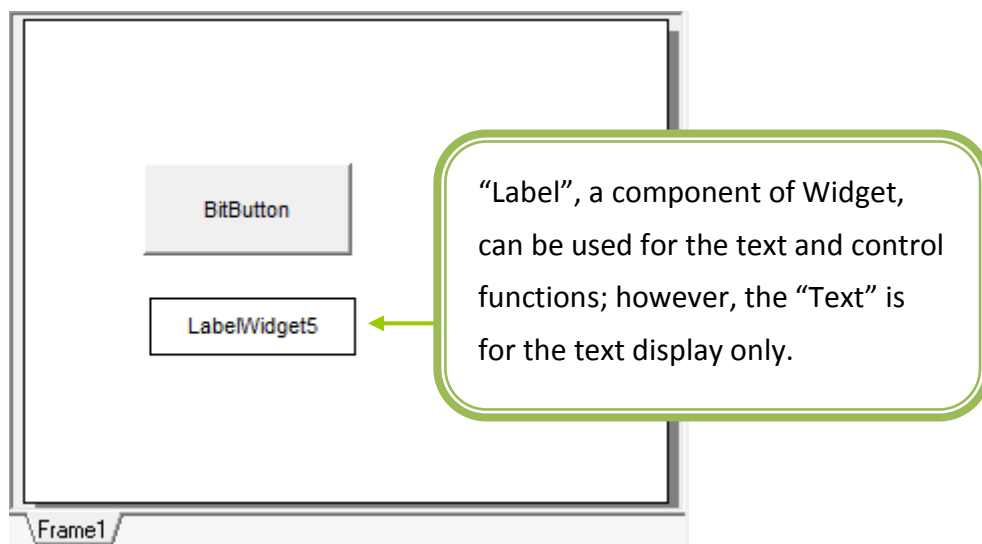
Step 2: Create a “BitButton” (picture button).

- Switch to the “Toolbox” page, as the following picture.
- Click “Widget (Ctrl+2)” to unfold the “Toolbox”.
- Select “BitButton” (Move mouse to the design area, the cursor become “+”).
- In the design area, drag the mouse to draw a rectangle.





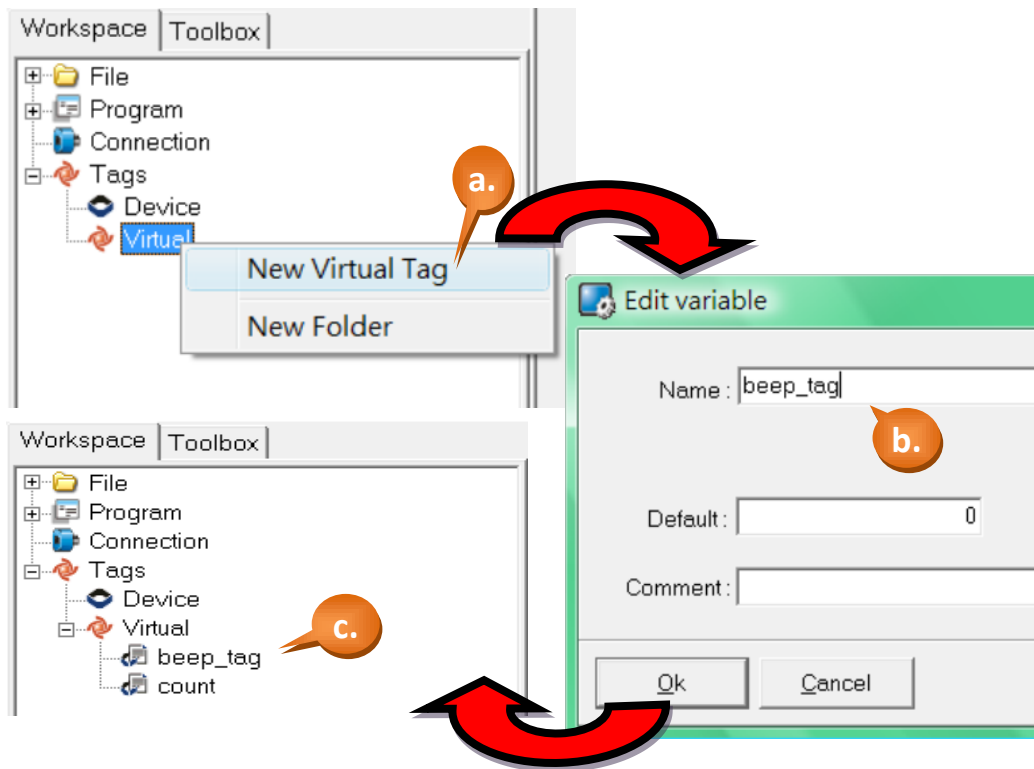
Step 3: As the previous step, create a “Label” (text display)



Step 4: Create 2 tags, “beep\_tag” and “count”.

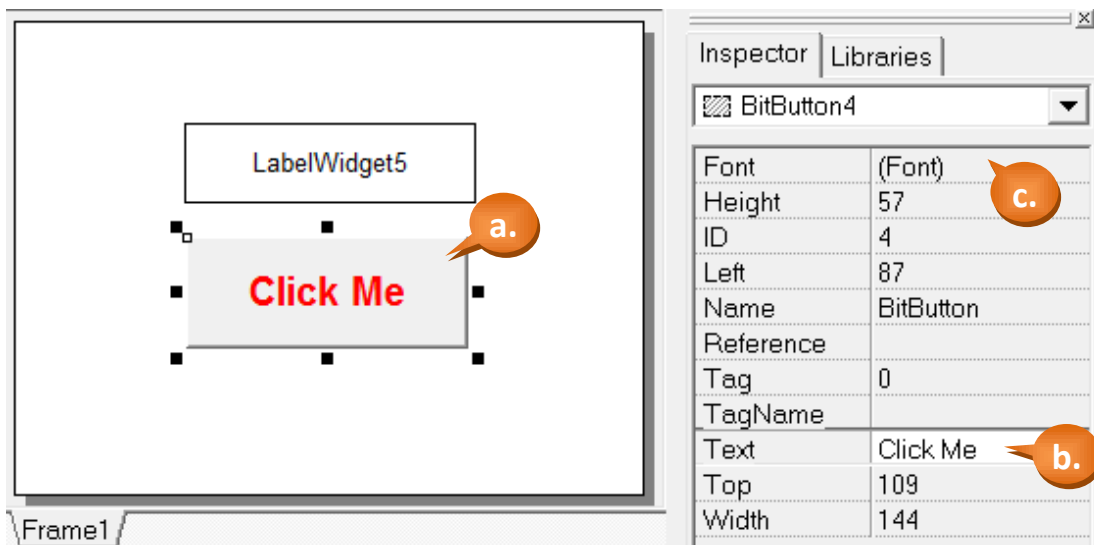
- As the picture below, right click “Virtual” in the Workspace to create the tags.
- Key in the name of the tag in the “Edit variable” window. Here we use “beep\_tag” for the first tag and “count” for the second.

- c. Finally, we can see that the 2 tags created in the Workspace.

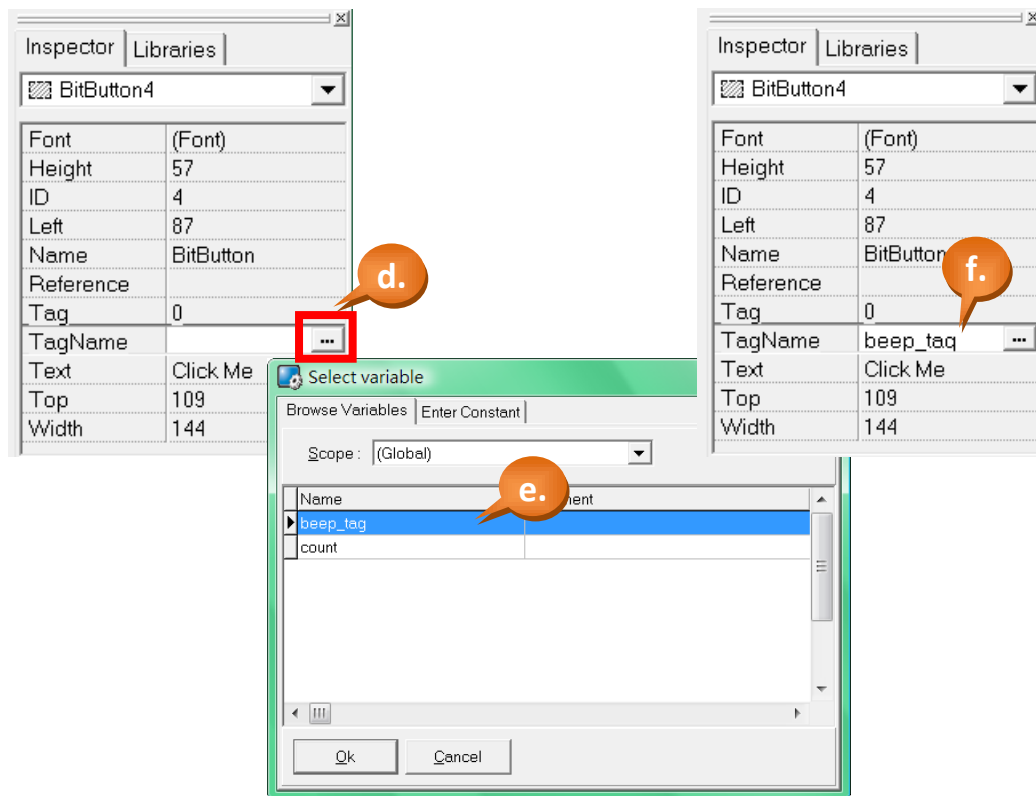


Step 5: Set up the properties of the “BitButton”.

- Select “BitButton”.
- Click the “Text” column in the Inspector area and change it to “Click Me”.
- Click “Font” to change the font, style, size and color.

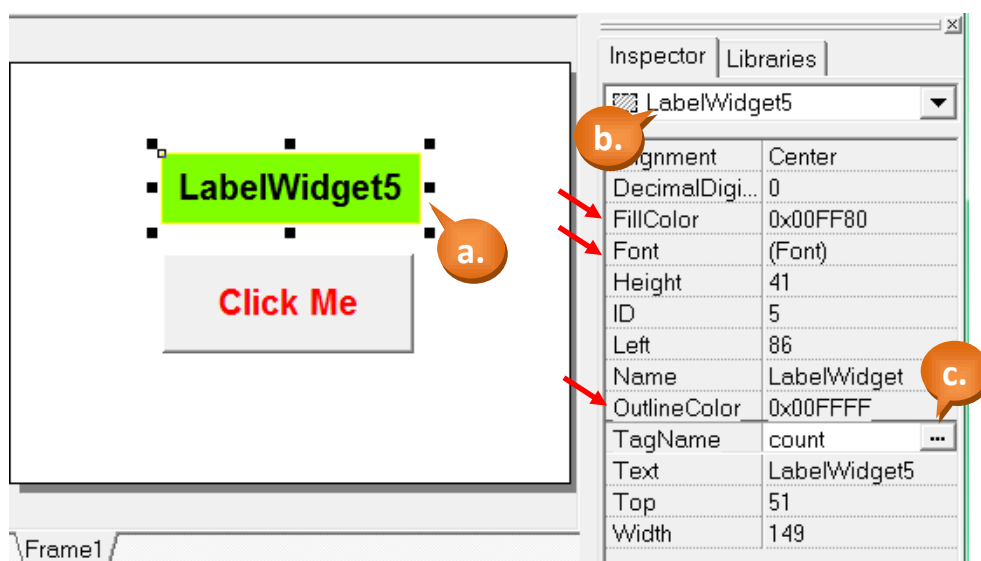


- d. Click on the "TagName" property in the Inspector and there shows a little button "...". Click on the "...".
- e. Select the tag you want. Here we select the tag, "beep\_tag", for the BitButton.
- f. Finally, we can see the tag we just choose.



Step 6: Set up the properties for "Label".

- a. Select the Label.



- b. The following properties can be modified in the Inspector area on the right hand side :

**Alignment:** Set the text alignment position in the display box of “Label”.

**FillColor:** Set the fill color for the display box of “Label”.

**Font:** Set the font for the text in the display box.

**Height:** Set the height of the display box.

**ID:** A unique serial number to identify different entities in the same type.

**Left:** The X-coordinate of the top left corner for the display box.

**Name:** The type name of the component.

**OutlineColor:** The outline color of the display box.

**Text:** The text in the display box.

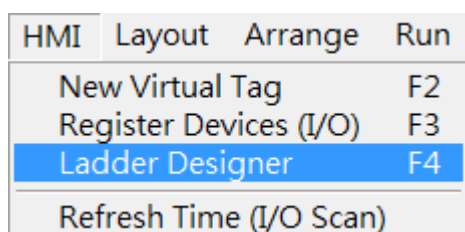
**Top:** The Y-coordinate of the top left corner for the display box.

**Width:** The width of the display box.

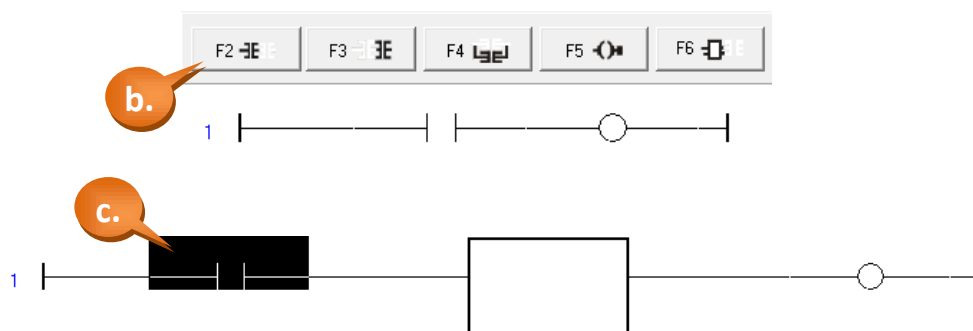
- c. Select “TagName” as “count”. (It is similar to set “TagName” as the above step.)

Step 7: Use the Ladder Designer to program the logic – the first rung.

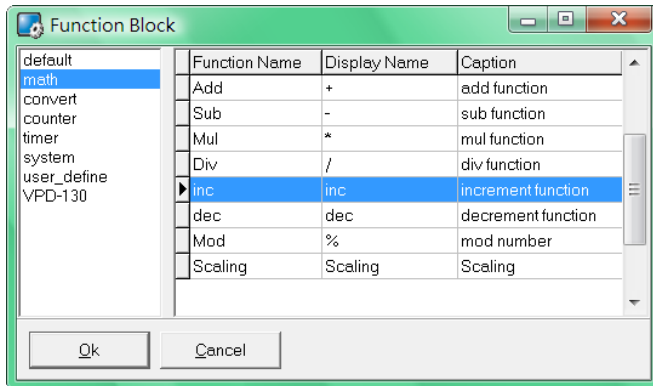
- a. Click menu [HMI] > [Ladder Designer].



- b. Press F2 (or F2 key on the keyboard) to create a new rung.
- c. Move the cursor (the highlighted rectangle) to the first contact symbol and then press F7 to add a new function block to the right of it.



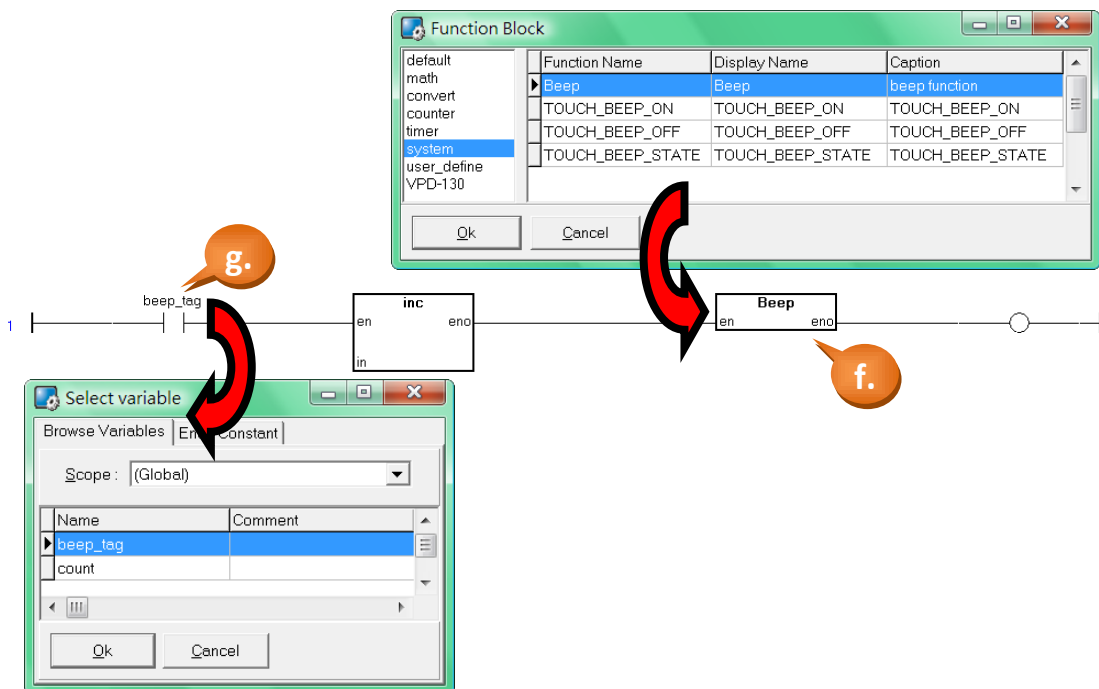
- d. Double-click on the function block to set the function to it. Here we set it the function, “increment”, of the category, “math”.



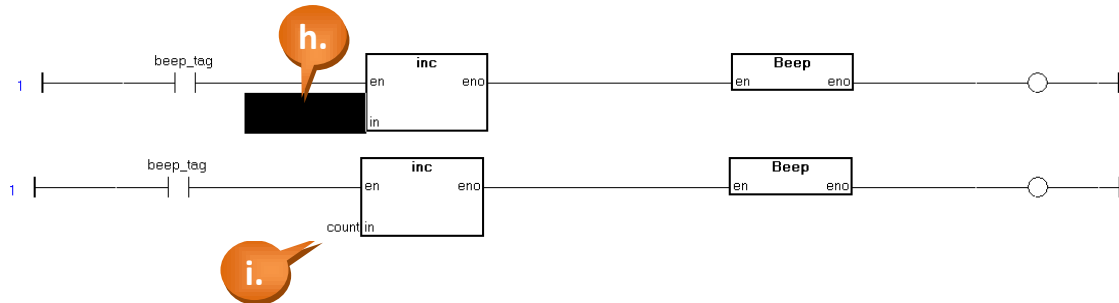
- e. Move the cursor to the function block of “inc” and then press F7 again to add a new function block to the right of it.



- f. Double-click on the second function block to set the function to it. Here we set it the function, “Beep”, of the category, “system”.
- g. Double-click on the contact symbol to select variable “beep\_tag”.



- h. Similarly, double-click on the neighborhood of the input parameter “in” as below figure to select variable “count”.
- i. Finally, the first rung is done.



- j. The first rung does the followings:  

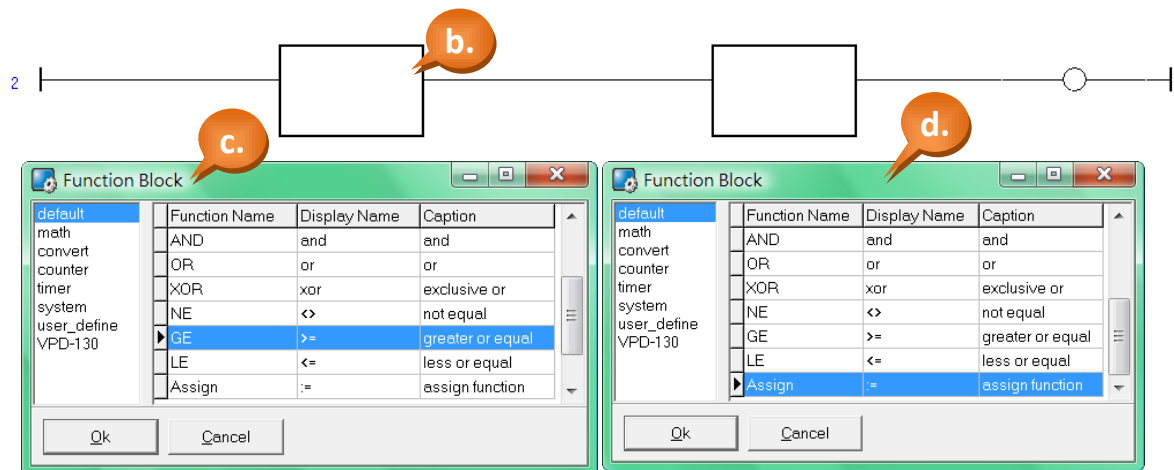
```

if( beep_tag == 1 ) //that is, when the BitButton is pressed.
{
    Beep(); //make a beep sound
    count = count + 1; //increment the count
}

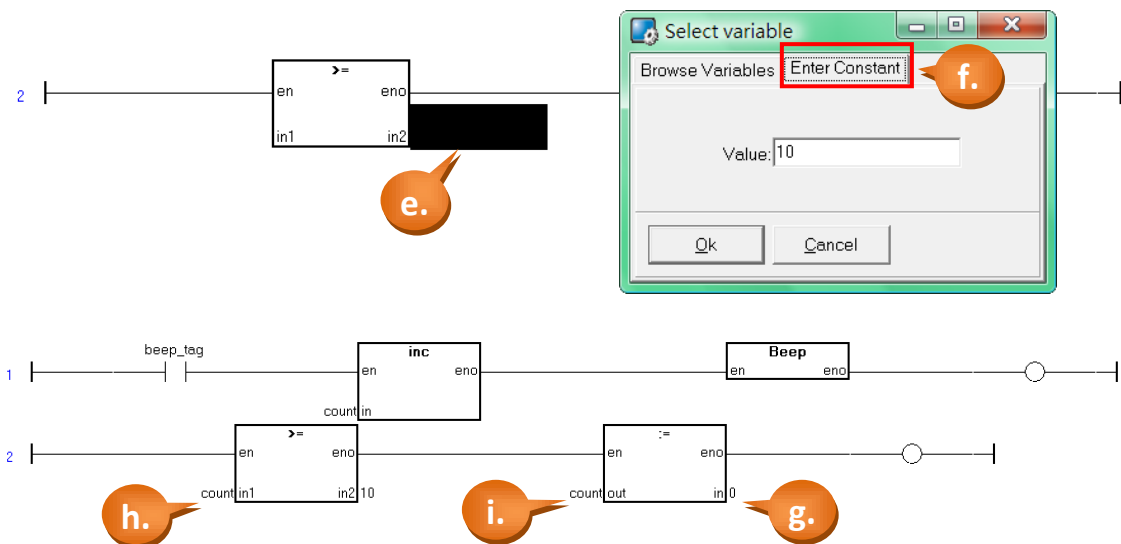
```

Step 8: Use the Ladder Designer to program the logic – the second rung.

- a. Similar to Step 7. Move the cursor to an empty position and then press F6 to add a new rung with a function block.
- b. Move the cursor to the previously-created function block and then press F7 to create a new function block to the right of the first one.
- c. Double-click on the first function block to set its function to “GE” (greater than or equal to) of the category, “default”.
- d. Double-click on the second function block to set its function to “Assign” of the category, “default”.



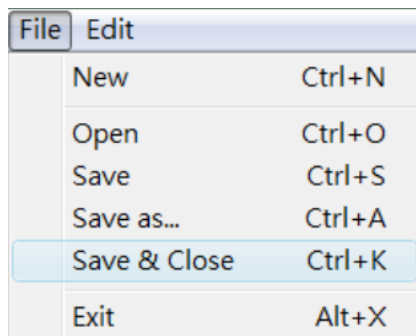
- e. Set the value of the parameter "in2" of the function "GE" (>=) by double-clicking on the neighborhood of the parameter "in2".
- f. To enter a constant to a parameter, click on the tab "Enter Constant" in the "Select variable" variable. Here we enter 10.
- g. Similarly, set the parameter "in" of the function "Assign" to zero.
- h. Similarly, select "count" to parameter "in1" of the function "GE" (>=).
- i. Similarly, select "count" to the parameter "out" of the function "Assign".



- j. The second rung does the followings:

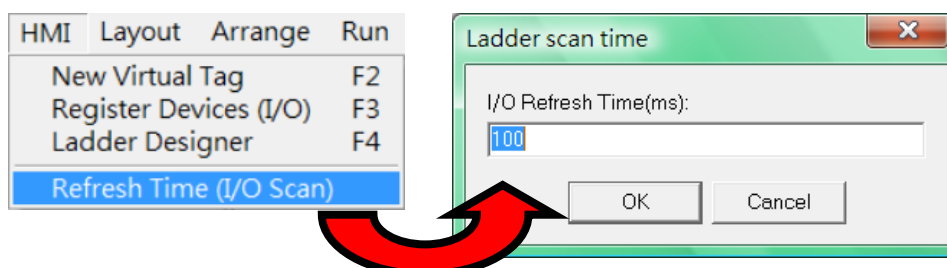
```
if( count >= 10 )  
{  
    count = 0;  //set the count to zero  
}
```

Step 9: Save and Close (the Ladder).



Step 10: Tune the scan time if necessary.

- a. Click the menu [HMI] > [Refresh Time (I/O Scan)] to set the scan time.



- b. The default scan time is 100 ms. The scan time is the time interval between two consecutive Ladder scan. That is, TouchPAD executes each rung of the ladder serially from the first rung to the last and after finishing the last rung, it waits until the scan time interval is up (the scan time interval is calculated from the time of the first rung's execution) to execute from the beginning (the first rung) again.
- c. The scan time might influence the feeling of sensitivity. If the scan time is too small, touching the BitButton on the screen one time may causes it triggering many times and thus makes the counter increment more than one.

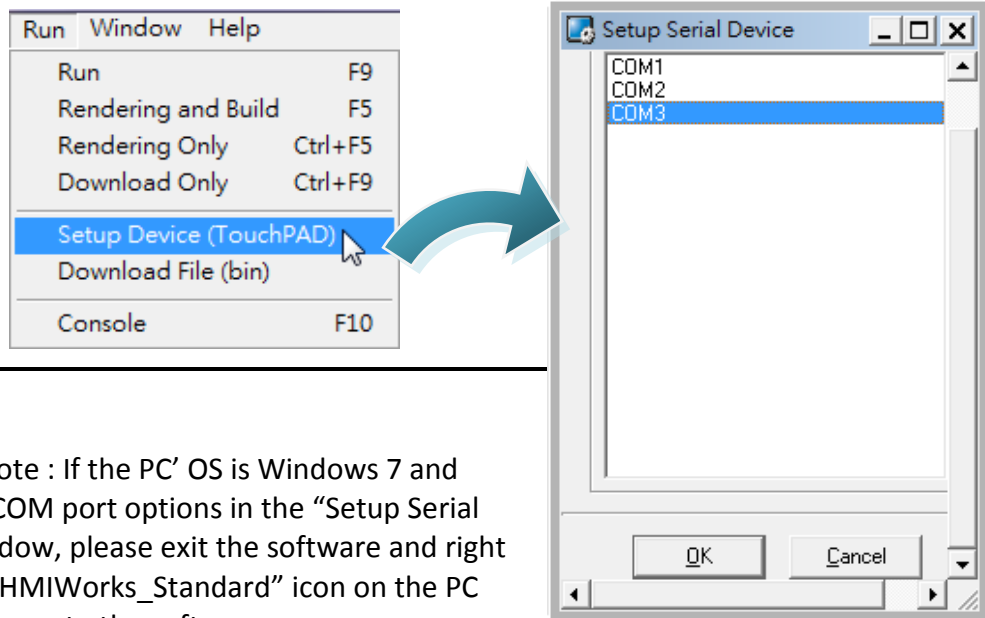


### 3.1.2 Device Setup (TouchPAD)

Step 1: Click the function menu [ Run ] > [ Setup Device (TouchPAD) ].

Step 2: Select the “COM” port number and click “OK”.

In this example, we set “COM3” of PC to use I-7561 (convert USB to RS-485). Please set the connected COM port of your PC. To know the COM number your PC used, please check it from the “Device Manager” of your PC.



Note : If the PC' OS is Windows 7 and there is no COM port options in the “Setup Serial Device” window, please exit the software and right click on the HMIWorks\_Standard” icon on the PC desktop to execute the software as an “administrator”.

### 3.1.3 Download Project

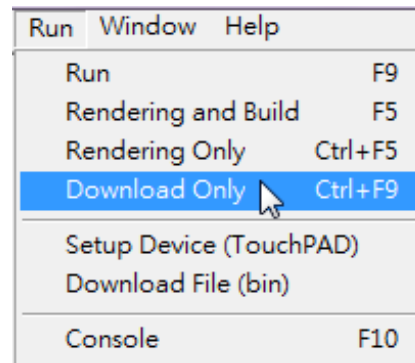
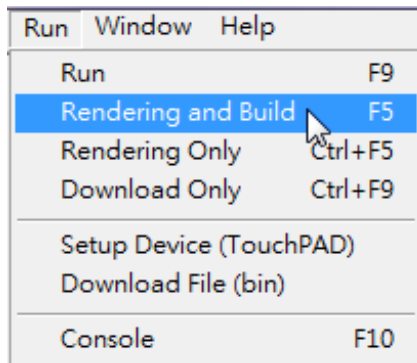
After finish the HMI page design, next, download the project to the TouchPAD.

Step 1: Turn the Rotary Switch on the back plane of TPD-280 to “1”, and then reset the TouchPAD.

Refer to [Section 1.2 Hardware Overview](#). (The TPD-280 screen is dark after reset.)

Step 2: Select [ Run ] > [ Rendering and Build ] in the HMIWorks menu to compile and make the project.

Step 3: Select [ Run ] > [ Download Only ] to download the project.



Step 4: After the project downloaded, turn the Rotary Switch of TPD-280 to "0" and reset the TouchPAD.

Refer to [Section 1.2 Hardware Overview](#).

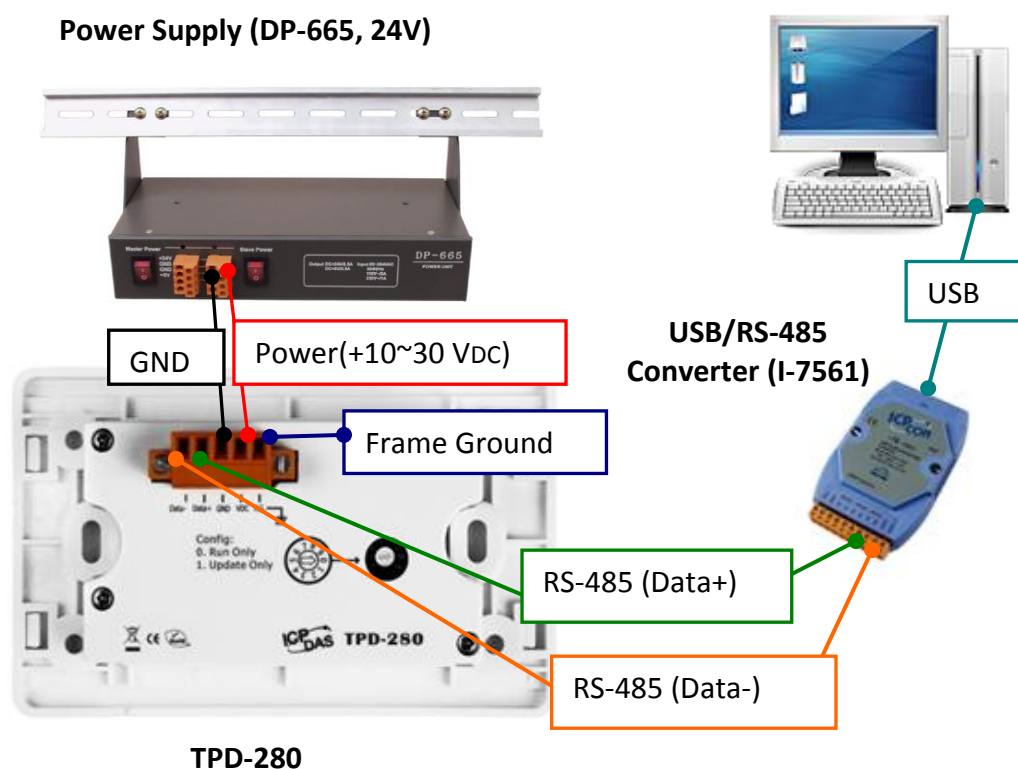
(The TPD-280 will display the HMI screen after reset.)

## 3.2 Demo 1 (Beep, Timer, Counter)

**Demo 1** is programmed in C language to design one button that will beep when click on it and add one to a counter; and also design another counter that will add one per second and reset to zero when it comes up to 100.

### Hardware Devices :

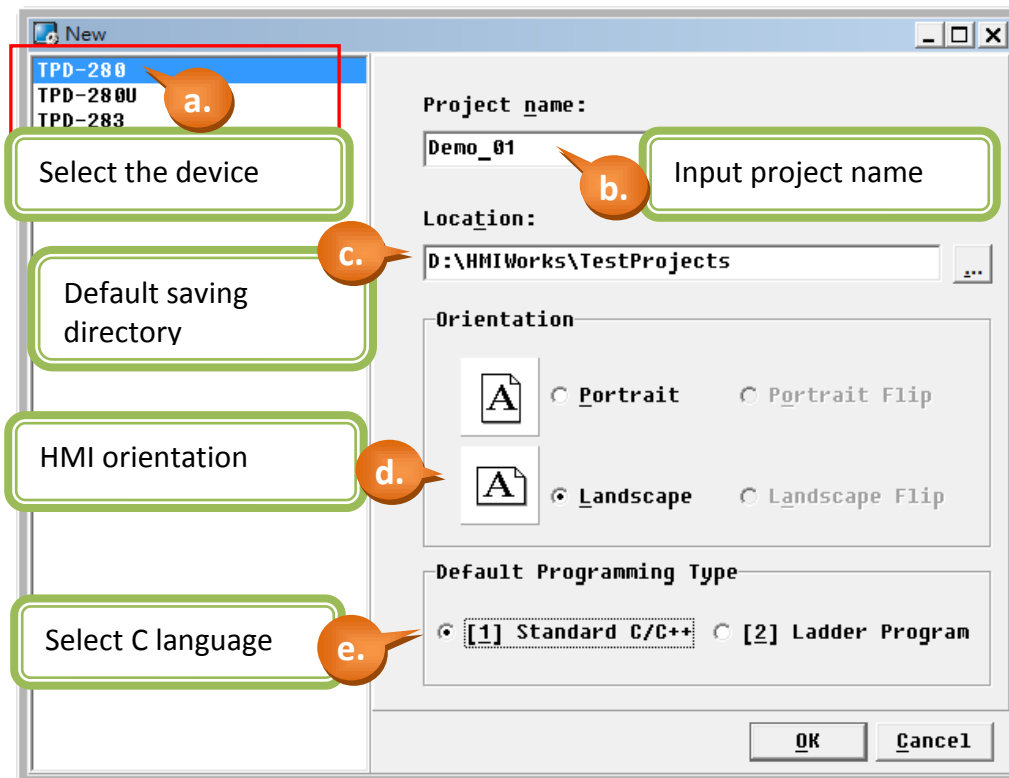
Using TPD-280 for demo example 1



For information about the driver download of I-7561 module and the hardware configuration of I/O modules, please refer to [Appendix A](#) and [Appendix B](#).

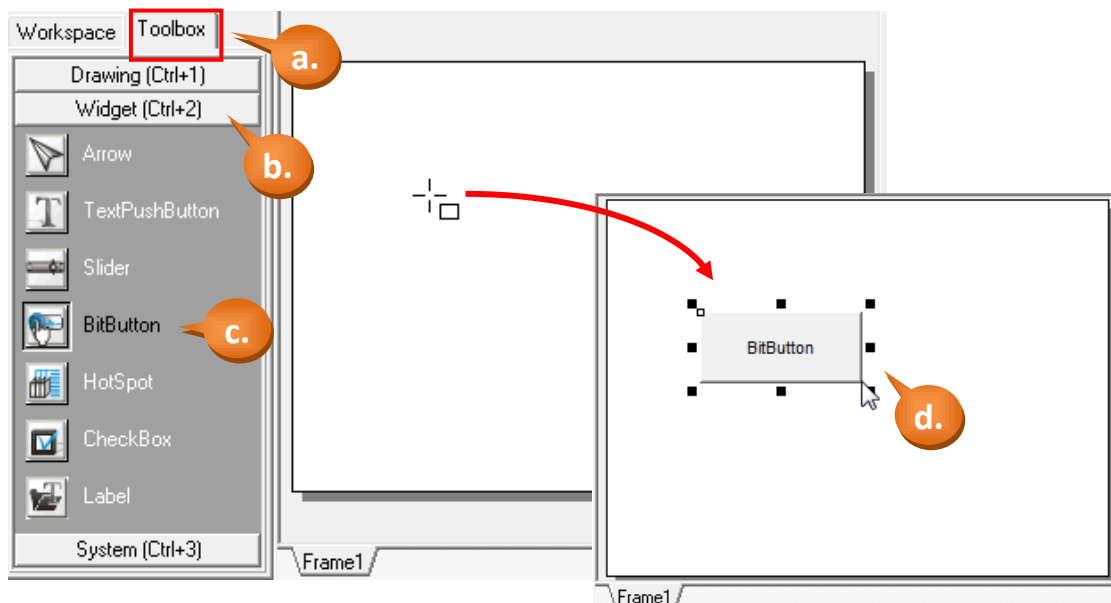
### 3.2.1 HMI Page Design

Step 1: Create a new TPD-280 project using C language (refer to [Section 2.2](#)).

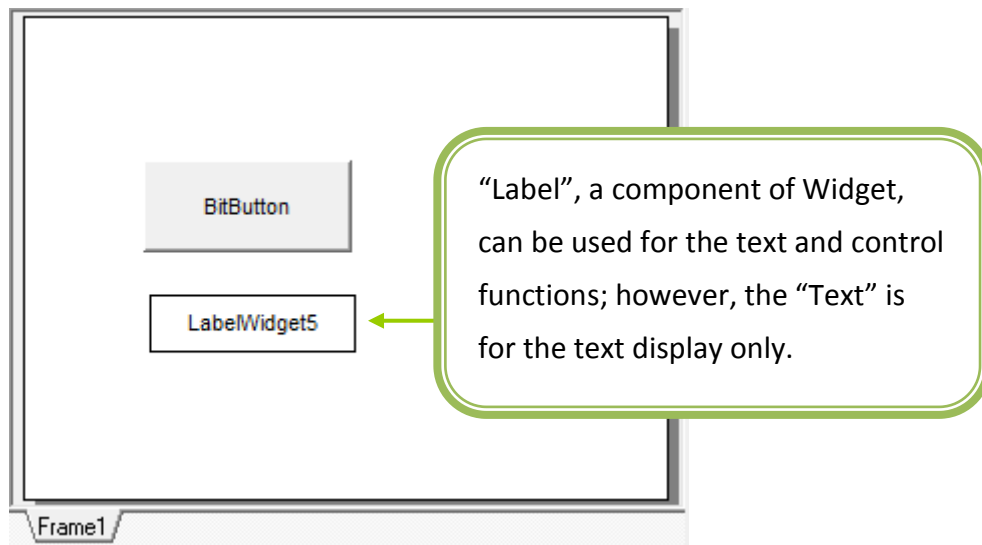


Step 2: Create a "BitButton" (picture button).

- Switch to the "Toolbox" page, as the following picture.
- Click "Widget (Ctrl+2)" to unfold the "Toolbox".
- Select "BitButton" (Move mouse to the design area, the cursor become "+").
- In the design area, drag the mouse to draw a rectangle.

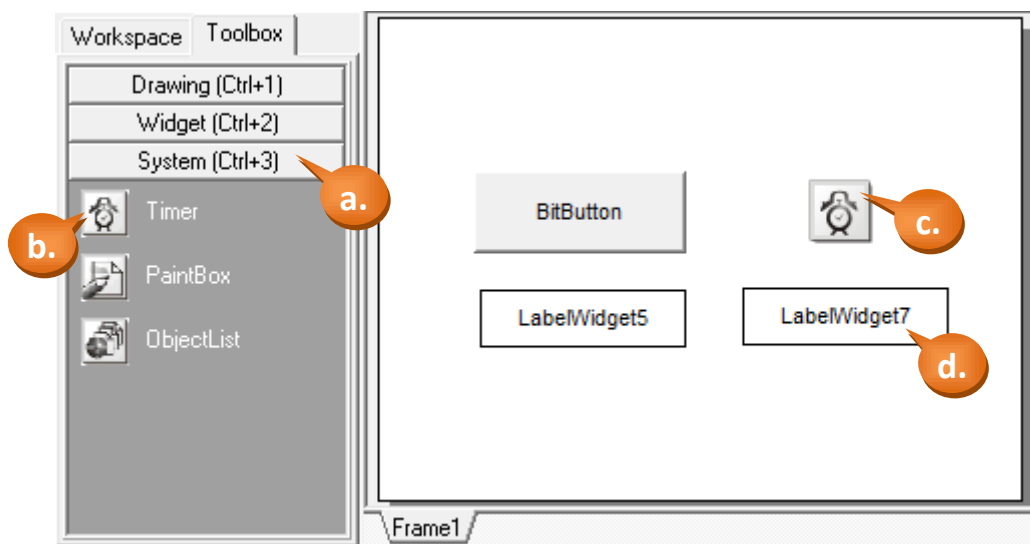


Step 3: As the previous step, create a “Label” (text display)



Step 4: Create a “Timer” and a “Label”.

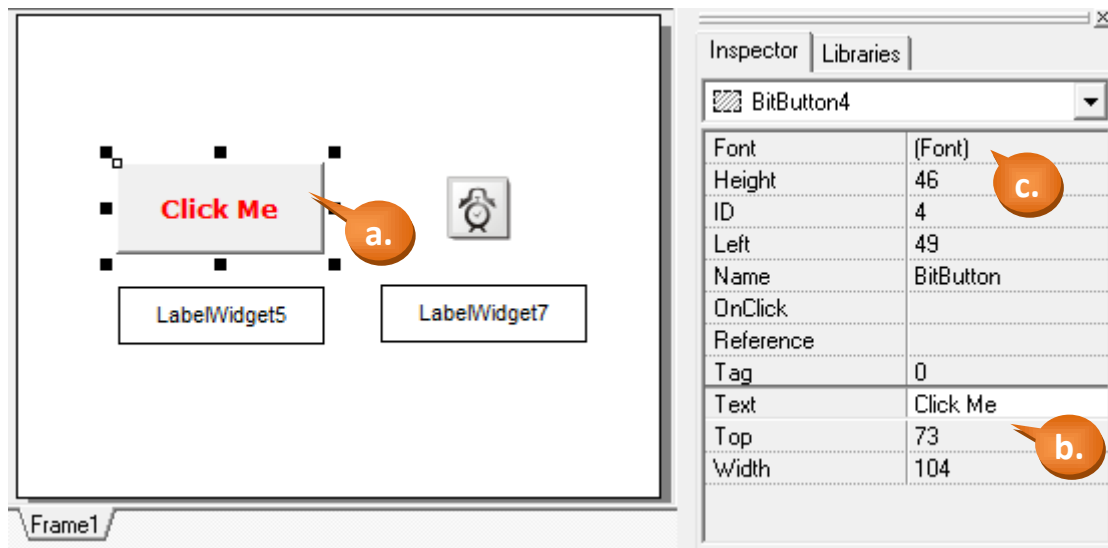
- As the picture below, click “System (Ctrl+3)” to unfold the toolbox.
- Select “Timer”. Move mouse to the Frame1 area, the mouse become “+”.
- Click on the design area to create a Timer icon.
- Select “Widget (Ctrl+2)”, create another “Label” as below picture.



Step 5: Set up the properties of the “BitButton”.

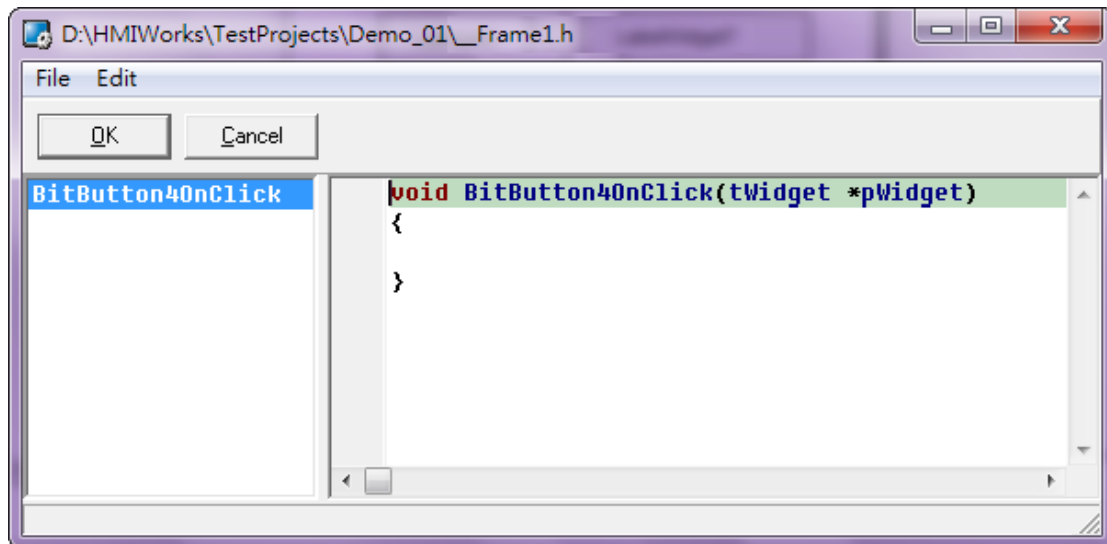
- Select “BitButton”.

- b. Click the "Text" column in the Inspector area and change it to "Click Me".
- c. Click "Font" to change the font, style, size and color.



Step 6: Edit the control codes for "BitButton".

- a. Double click the "BitButton" to open the programming window.



- b. Edit C language in the programming window. (User can copy the code from the following picture.) In this demo, each click of the button will add 1 and beep once until it cumulate to 100, and then reset to 0 to cumulate again.
- c. When finish, click "Save & Close".

**File** Edit

- Save File Ctrl+S
- Save & Close Ctrl+K
- Close Ctrl+L

**Declare variables**

```
long cnt1=0;
static char str1[32];
```

**Beep function**

```
void BitButton4OnClick(tWidget *pWidget)
{
    hmi_Beep();
    cnt1=cnt1+1;
    if (cnt1>100)
    {
        cnt1=0;
    }
    usprintf(str1,"%d",cnt1);
    LabelTextSet(&LabelWidget5, str1);
}
```

**Convert integer to string for showing on the Label.**

**Inspector** Libraries

LabelWidget5	
Alignment	Center
FillColor	0xFF8000
Font	(Font)
Height	29
ID	5
Left	51
Name	LabelWidget
OutlineColor	0xFF8000
Text	LabelWidget5
Top	135
Width	103

**This name must be the same as the property "Name + ID" of the Label.**

LabelWidget5 LabelWidget7

Step 7: Set up the properties for "Label".

- Select a Label ("LabelWidget5" or "LabelWidget7").

**Click Me**

LabelWidget5 LabelWidget7

**Inspector** Libraries

LabelWidget7	
Alignment	Center
FillColor	0x0080FF
Font	(Font)
Height	29
ID	7
Left	181
Name	LabelWidget
OutlineColor	0x0080FF
Text	LabelWidget7
Top	134
Width	103

- b. The following properties can be modified in the Inspector area on the right hand side :

**Alignment:** Set the text alignment position in the display box of “Label”.

**FillColor:** Set the fill color for the display box of “Label”.

**Font:** Set the font for the text in the display box.

**Height:** Set the height of the display box.

**ID:** A unique serial number to identify different entities in the same type.

**Left:** The X-coordinate of the top left corner for the display box.

**Name:** The type name of the component.

**OutlineColor:** The outline color of the display box.

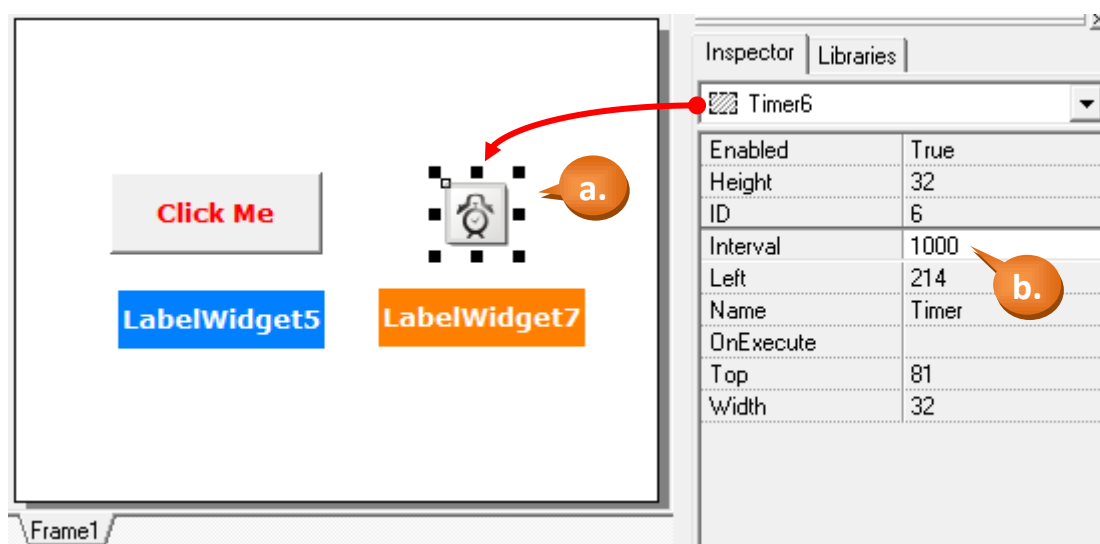
**Text:** The text in the display box.

**Top:** The Y-coordinate of the top left corner for the display box.

**Width:** The width of the display box.

Step 8: Set the properties of “Timer”.

- a. Follow the picture below. Select “Timer6”.
- b. Set the “Interval” property in the Inspector area. The unit is milliseconds (ms); if the control function is executed every 1 second, please set it as “1000”.



Step 9: Edit the control codes for “Timer”.



- Double click "Timer6".
- Edit C language in the programming window. (User can copy the code from the following picture.) In this demo, the counter will add 1 each time until it cumulate to 100, and then reset to 0 to cumulate again.
- When finish, click "Save & Close".

**b.** long cnt1=0;  
long auto\_cnt1=0;  
static char str1[32];

Declare variable (auto cnt1)

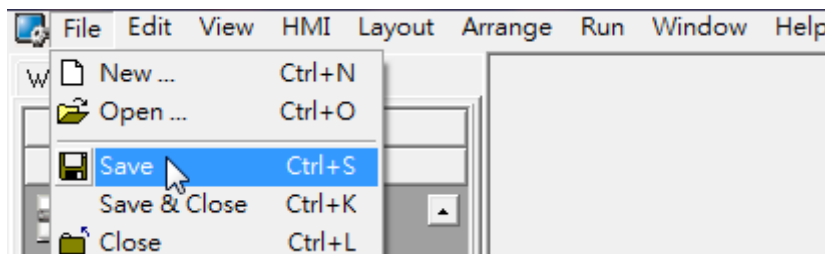
Convert integer to string and display on the Label.

```
void Timer6OnExecute(tWidget *pWidget)
{
    auto_cnt1=auto_cnt1+1;
    if (auto_cnt1>100)
    {
        auto_cnt1=0;
    }
    usprintf(str1,"%d",auto_cnt1);
    LabelTextSet(&LabelWidget7, str1);
}
```

This name must be the same as "Name + ID" of Label.

LabelWidget5    LabelWidget7

Step 10: The Demo 1 is done. Please click menu [File] > [Save] to save file.

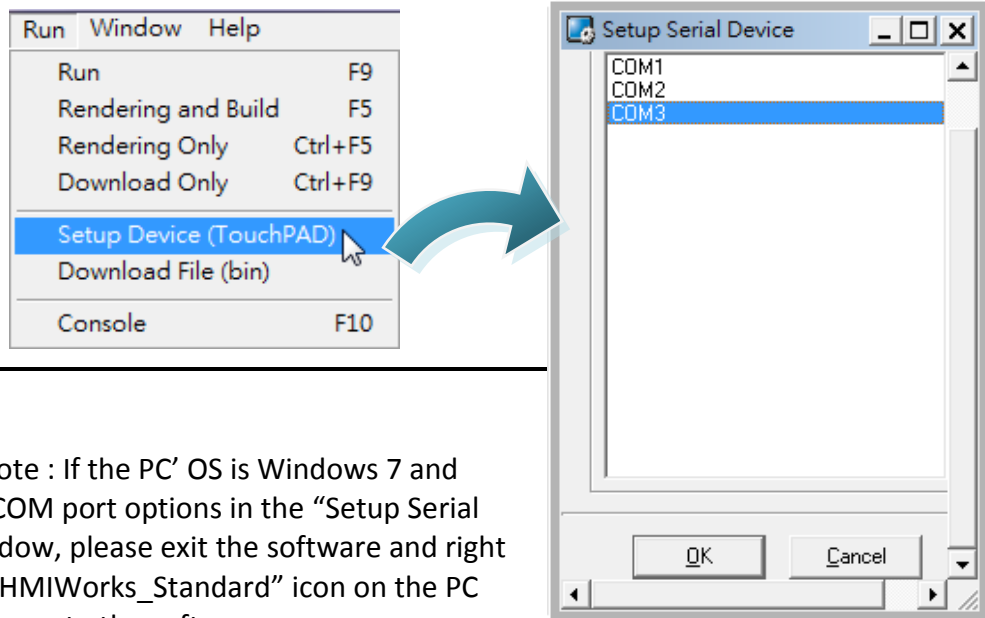


## 3.2.2 Device Setup (TouchPAD)

Step 1: Click the function menu [ Run ] > [ Setup Device (TouchPAD) ].

Step 2: Select the “COM” port number and click “OK”.

In this example, we set “COM3” of PC to use I-7561 (convert USB to RS-485). Please set the connected COM port of your PC. To know the COM number your PC used, please check it from the “Device Manager” of your PC.



Note : If the PC' OS is Windows 7 and there is no COM port options in the “Setup Serial Device” window, please exit the software and right click on the HMIWorks\_Standard” icon on the PC desktop to execute the software as an “administrator”.

## 3.2.3 Download Project

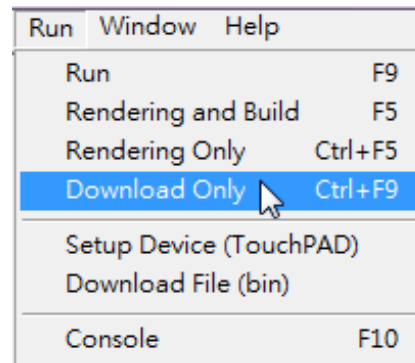
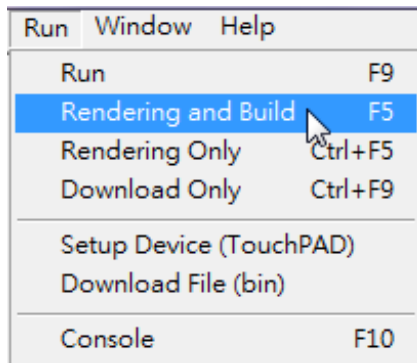
After finish the HMI page design, next, download the project to the TouchPAD.

Step 1: Turn the Rotary Switch on the back plane of TPD-280 to “1”, and then reset the TouchPAD.

Refer to [Section 1.2 Hardware Overview](#). (The TPD-280 screen is dark after reset.)

Step 2: Select [ Run ] > [ Rendering and Build ] in the HMIWorks menu to compile and make the project.

Step 3: Select [ Run ] > [ Download Only ] to download the project.



Step 4: After the project downloaded, turn the Rotary Switch of TPD-280 to "0" and reset the TouchPAD.

Refer to [Section 1.2 Hardware Overview](#).

(The TPD-280 will display the HMI screen after reset.)

## 3.3 Demo 2

(Remote I/O: Light, Temperature, Communication Detector)

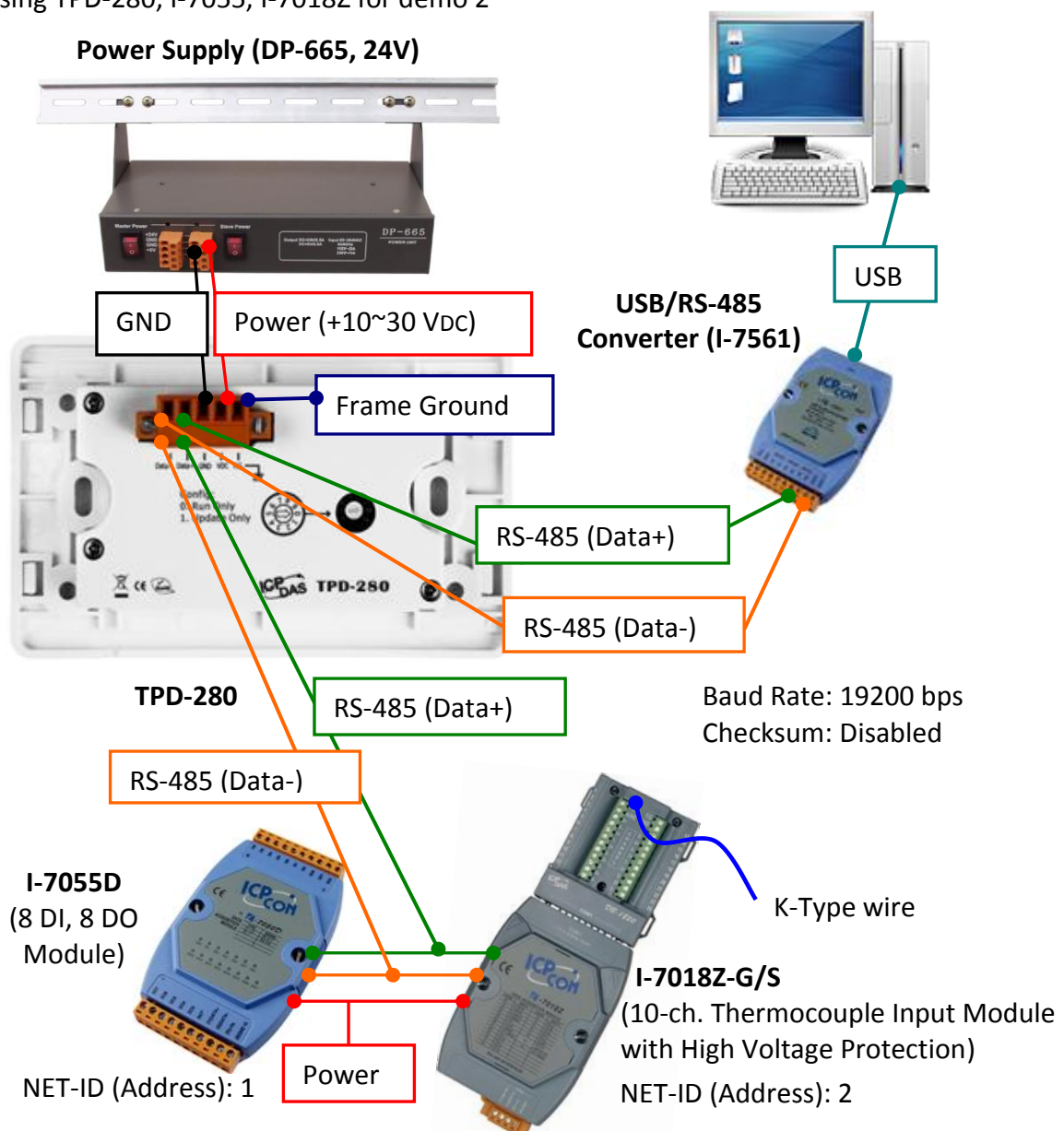
**Demo 2** is designed in LD language to create two HMI frames :

Frame1: Light display/control (DI/DO) x 8,  
Temperature display (I-7018Z ch0) x 1  
Communication detector (I-7055, I-7018Z) x 1  
Frame switch x 1

Frame2: Scene picture x 1                      Control button x 1  
Light control (DO) x 2                      Frame switch x 1

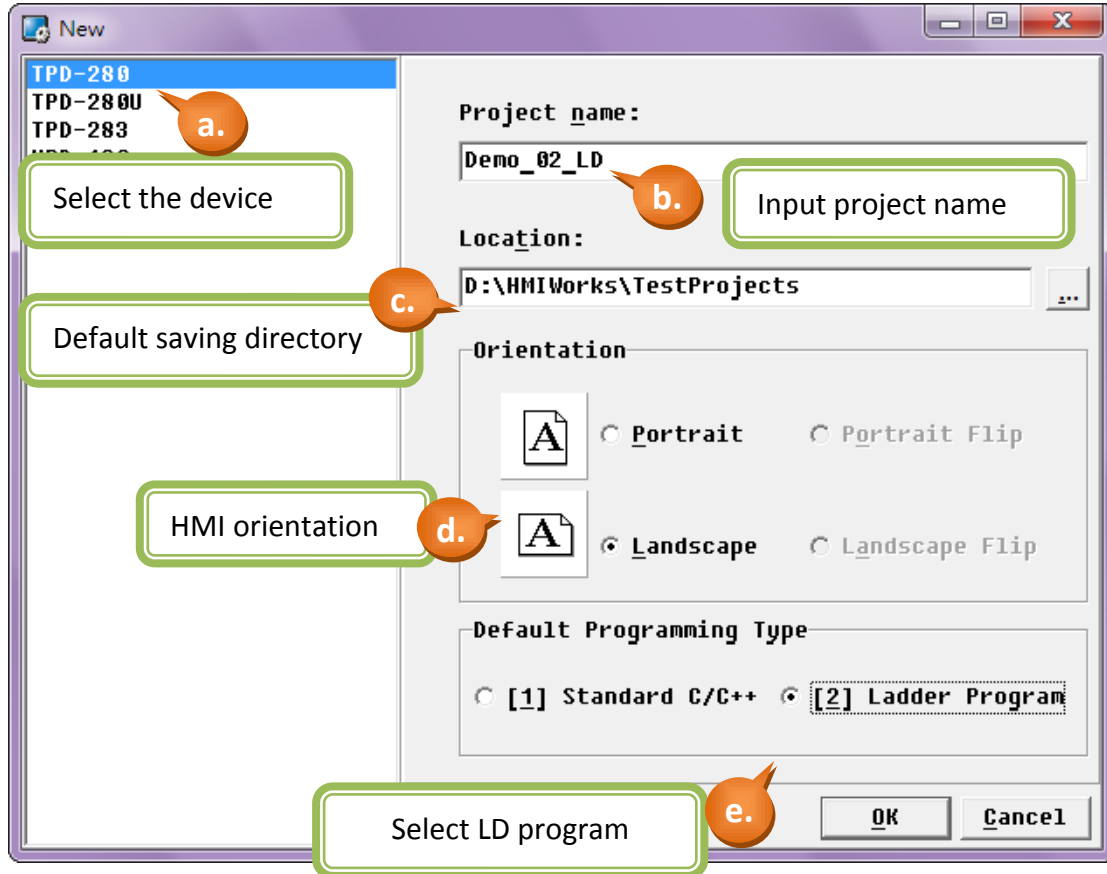
### Hardware Devices :

Using TPD-280, I-7055, I-7018Z for demo 2



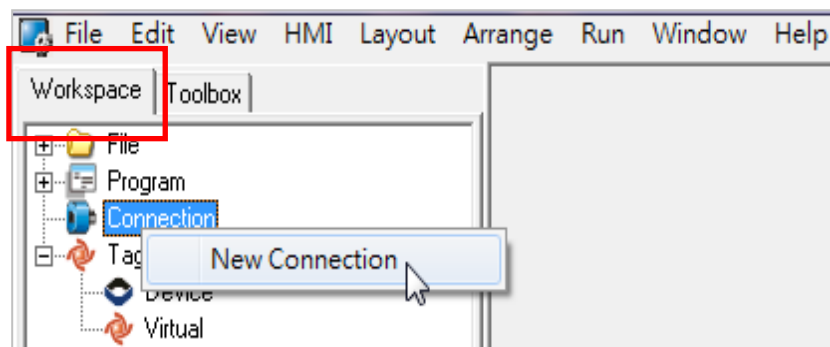
### 3.3.1 HMI Frame Design

Step 1: Create a new TPD-280 project using LD (refer to [Section 2.2](#)).

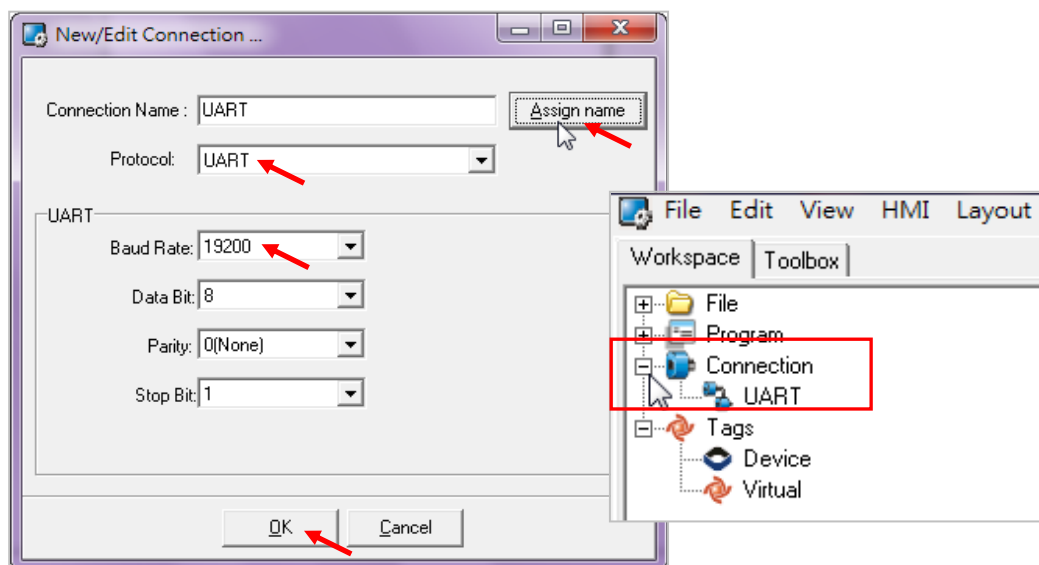


Step 2: Set up the connection.

- Right click the [Connection] > [New Connection] of "Workspace" to set up the connection.

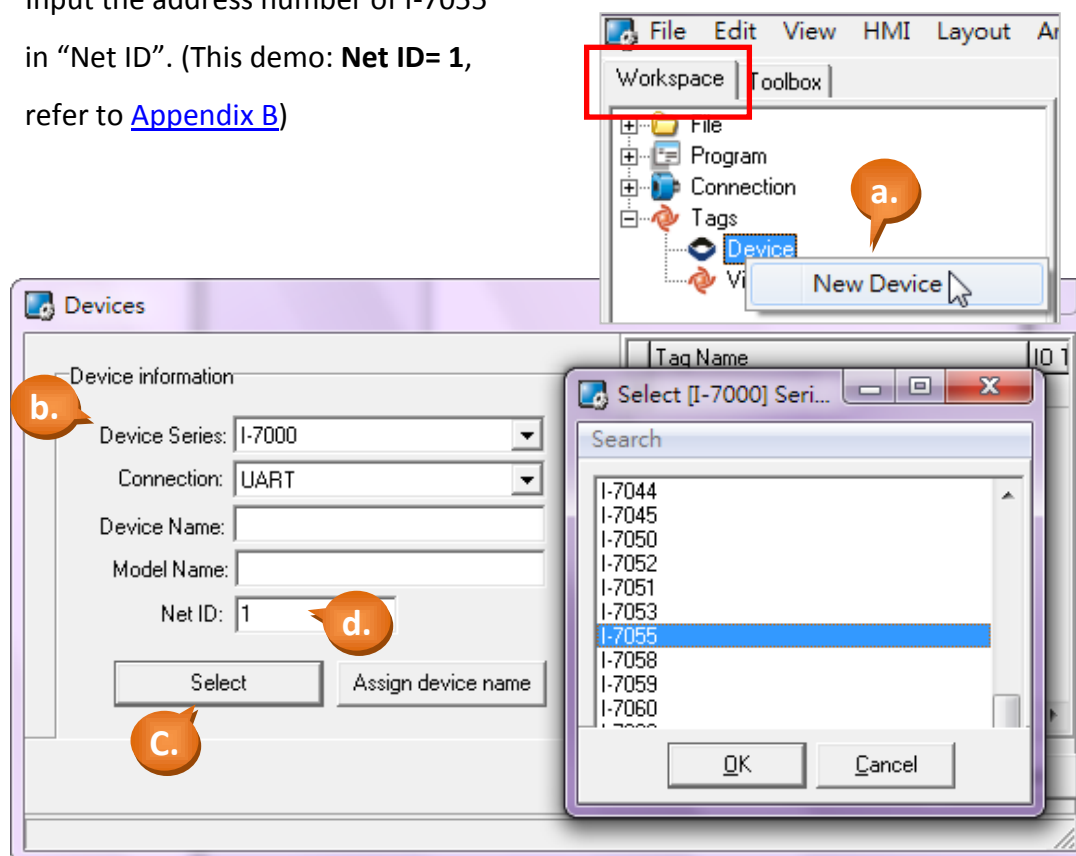


- In this demo, select "UART" Protocol and set "Baud Rate" as "19200", then give a connection name or click "Assign name" to assign one name by system.

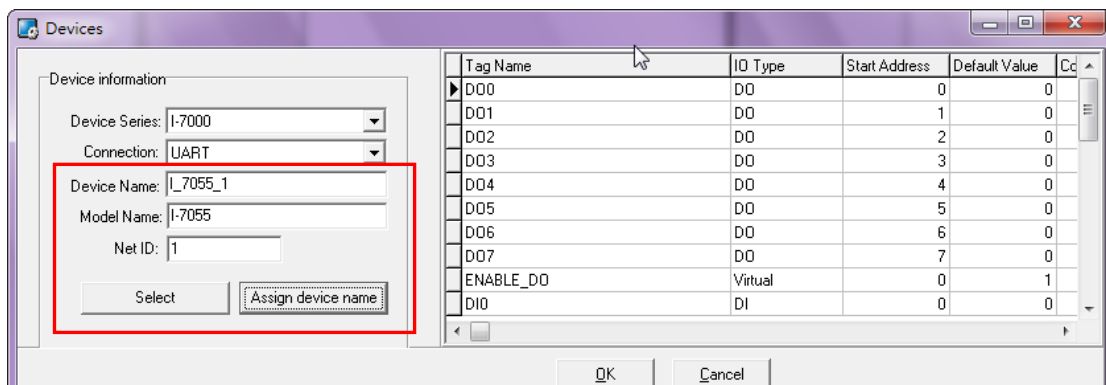


Step 3: Set up I/O device tags. (This demo: I-7055D, I-7018Z)

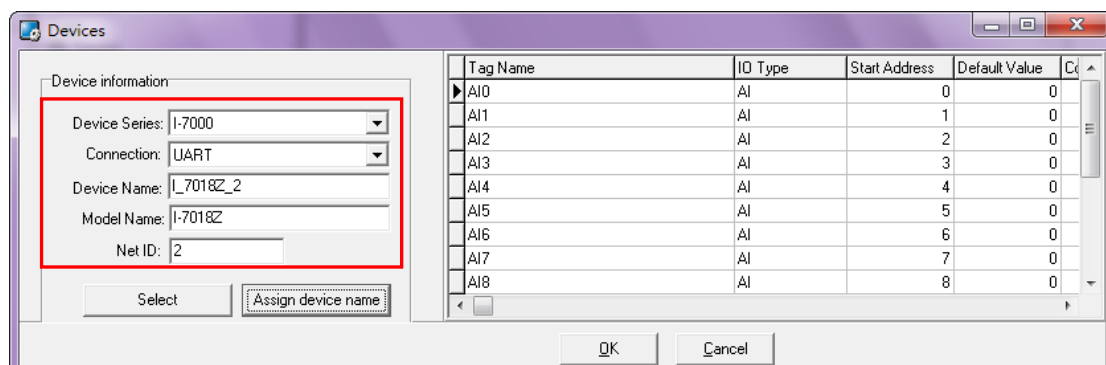
- Right click the "Device" of "Workspace", then "New Device".
- Select "I-7000" in "Device Series" and the created "UART" in "Connection".
- Click "Select" button to select the I/O module. (This demo: I-7055)
- Input the address number of I-7055 in "Net ID". (This demo: **Net ID= 1**, refer to [Appendix B](#))



- e. Give a device name or click “Assign device name” to assign name by system.

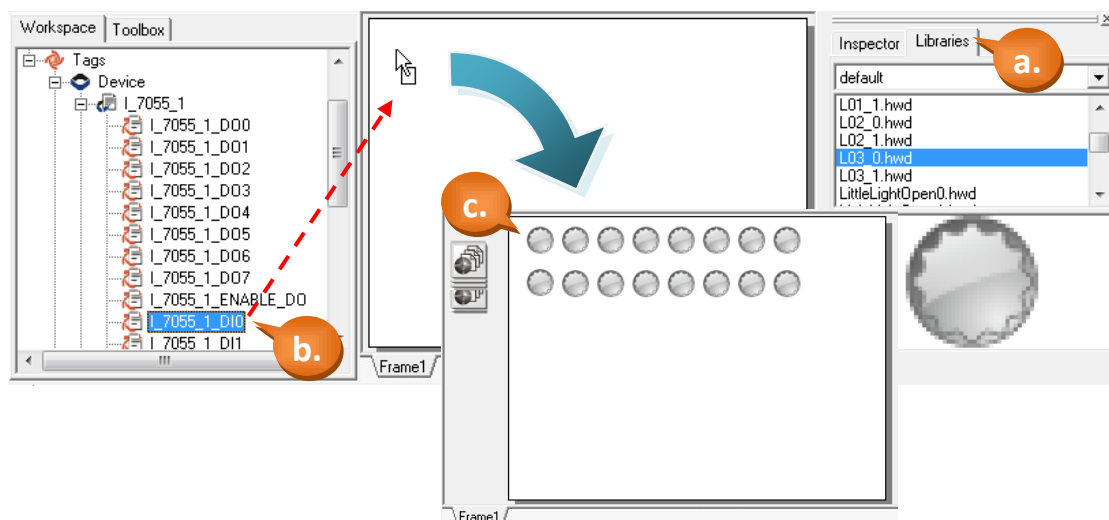


- f. Repeat above steps to add I-7018Z I/O module (**Net ID = 2**) .



**Step 4: Create the light display/control. (This demo: 8 DI/DOs)**

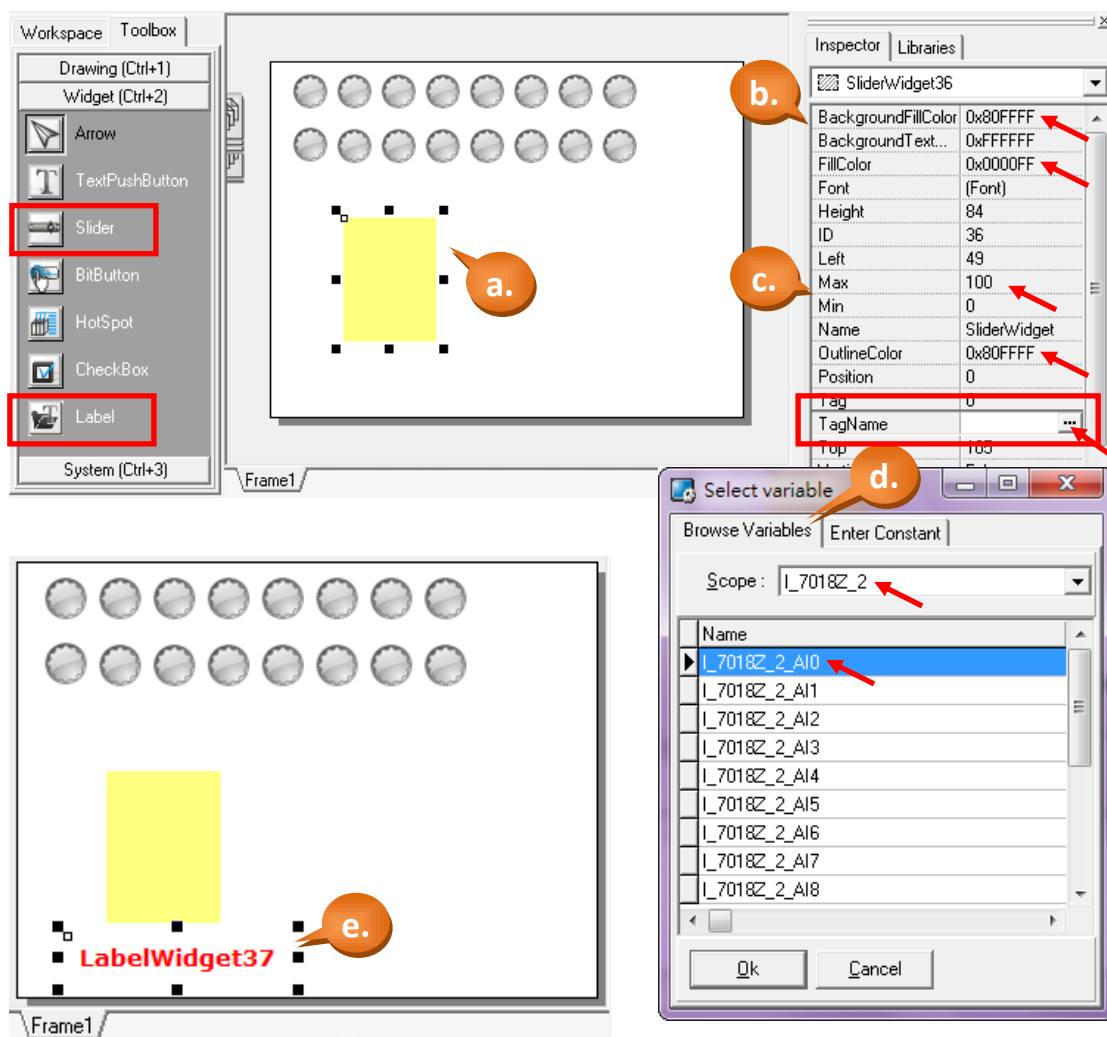
- a. Click “Libraries” on the right side, select the [graphic \(GUI\)](#) you want to use.
- b. Select and drag the I/O tag want to connect from the left side into the frame.
- c. Repeat the steps above to drag DI0 ~7 and DO0 ~7 into the HMI frame.



**Step 5: Create the temperature display. (This demo: I-7018Z ch0)**

For the temperature value, you can use the height or width of “Slider” to display by rectangle size, or choose the “Label” to display by numeric.

- As the following picture, unfold the Toolbox-Widget (Ctrl+2), select “Slider” and drag a rectangle in the Frame1.
- In the “Inspector” of property, you can change the background fill color (“BackgroundFillColor”), fill color (“FillColor”), outline color (“OutlineColor”), or set “Vertical” to “True” to show the value from bottom to up (“False” will show the value from left to right.).
- Change “Max” and “Min” to fit the maximum and minimum values.
- Select “TagName” to enter “Select variable” window, click “Scope” to set the I/O Tag (This demo: I-7018Z AI ch0).

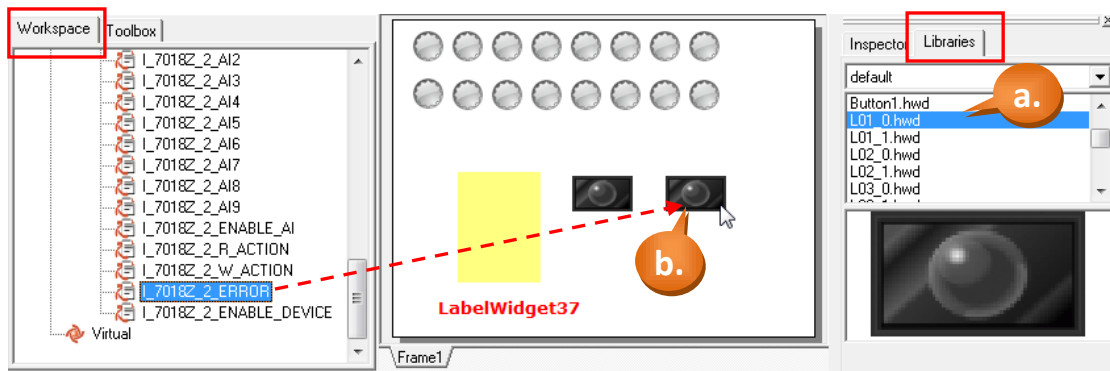




- e. Refer to the previous step, select the “Label” of the Toolbox, drag a rectangle, edit its font, outline color in the “Inspector” and assign the “TagName” (This demo: I-7018Z AI ch0).

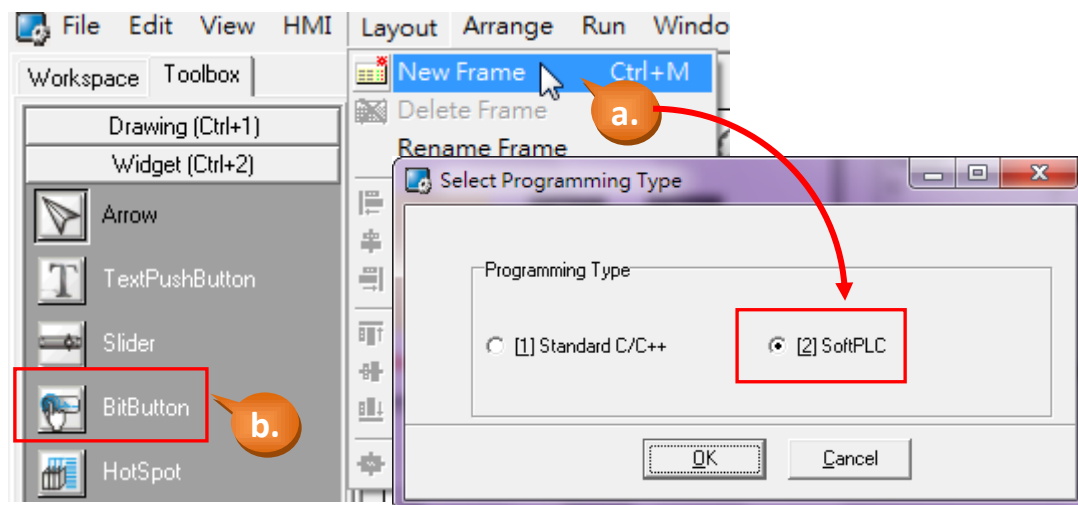
Step 6: Set up communication detectors. (This demo: I-7055D, I-7018Z)

- a. As the picture below, select two [graphic \(GUI\)](#) lights in the “Libraries”.
- b. Select and drag the “I\_7055\_1\_ERROR” and “I\_7018Z\_2\_ERROR” in the Workspace into the frame. (The light will turn on if there is any communication problem between the TouchPAD and I/O modules.)



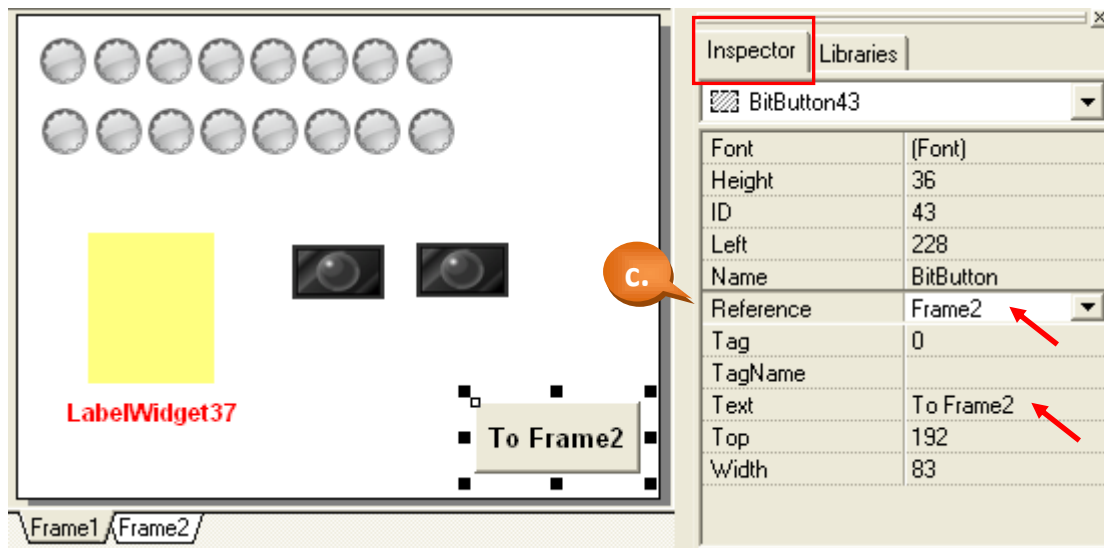
Step 7: Set up the button to switch frame.

- a. Click the menu [ Layout ] > [ New Frame ] and select “SoftPLC” to create a new LD frame.



- b. Select “BitButton” in the “Toolbox- Widget (Ctrl+2)” and drag a rectangle in the Frame1.

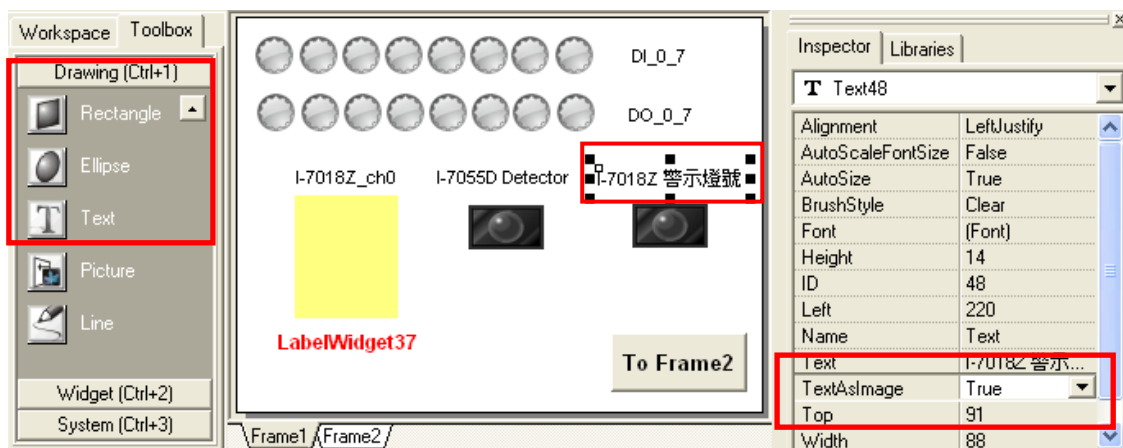
- c. Edit its property in the “Inspector” : set “Reference” as “Frame2”, key in the text in the “Text” column.



#### Step 8: Create Text components.

You can create the “Text” to describe the component on the HMI frames.

- a. Select “Text” in the “Toolbox- Drawing (Ctrl+1)”, and then click on the frame to placed the “Text” on wherever you want to description.
- b. Key in the description in the “Text” column of the Inspector.
- c. Change “TextAsImage” to “True” to enable displaying local language (like Chinese).



#### Tips & Warnings



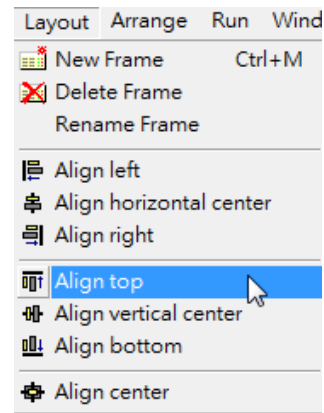
**Note:** If change the “TextAsImage” of “Text” to “True”, the TouchPAD can display texts in the local language (like Tranditional Chinese, supported by

MS Windows). The “Text” and “BitButton” are displayed in image mode that converted from text, so they take more memory space.



### How to align multiple components?

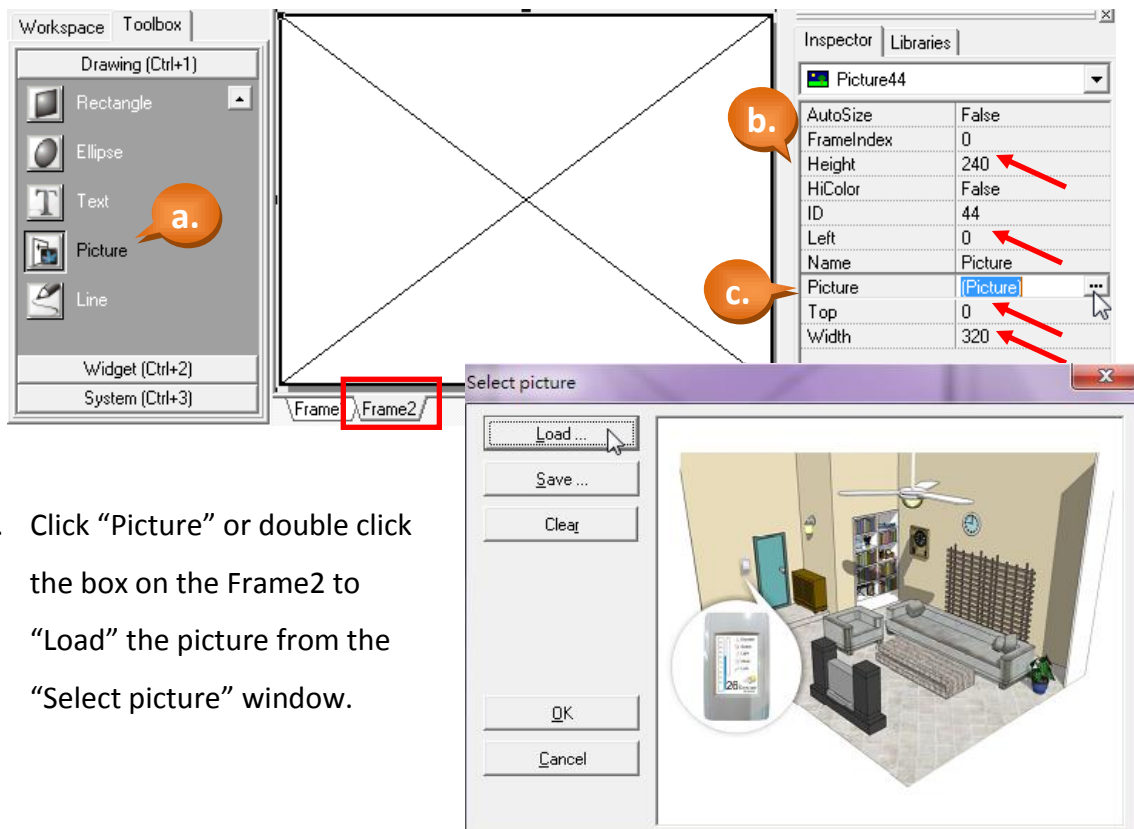
Select the HMI components by circle them in mouse or press the “Shift” key to click multiple ones, then click “Layout” on the menu to select a align option.



Step 9: Set up the background picture.

First, switch to the “Frame2”.

- Select “Picture” in “Toolbox- Drawing (Ctrl+1)” and drag a rectangle on the Frame2.
- Edit “Height”, “Width” in the Inspector to change the picture size. Edit “Left”, “Top” to change the align position.



- Click “Picture” or double click the box on the Frame2 to “Load” the picture from the “Select picture” window.

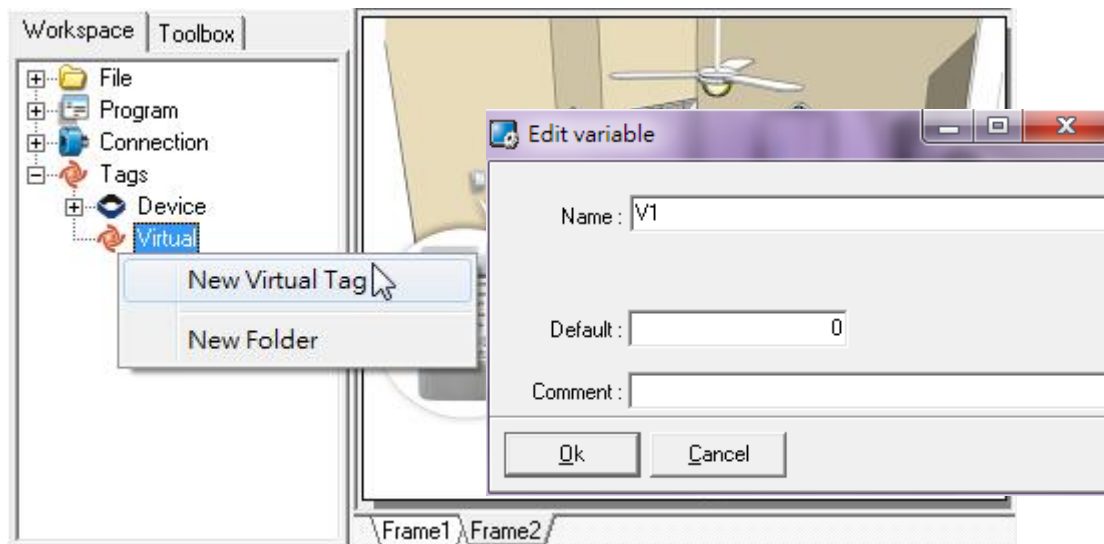
## Tips & Warnings



- Change the “HiColor” property to “True” can improve the image resolution, but the file size will increase at the same time.
- You can draw the picture in the “Microsoft Paint”, use Select (Ctrl+A), Copy (Ctrl+C) and then Paste (Ctrl+V) the picture to the HMI frame.

Step 10: Create the Virtual control button.

- First, create a Virtual Tag. Right click on “Virtual” and select “New Virtual Tag”, then give a variable name (ex: V1) in “Edit variable” window.



- Create a “BitButton” refer to the Step 7-b. In the “Inspector”, change “Font” and “Text”, then assign “V1” to “TagName” (refer to Step 5-d).



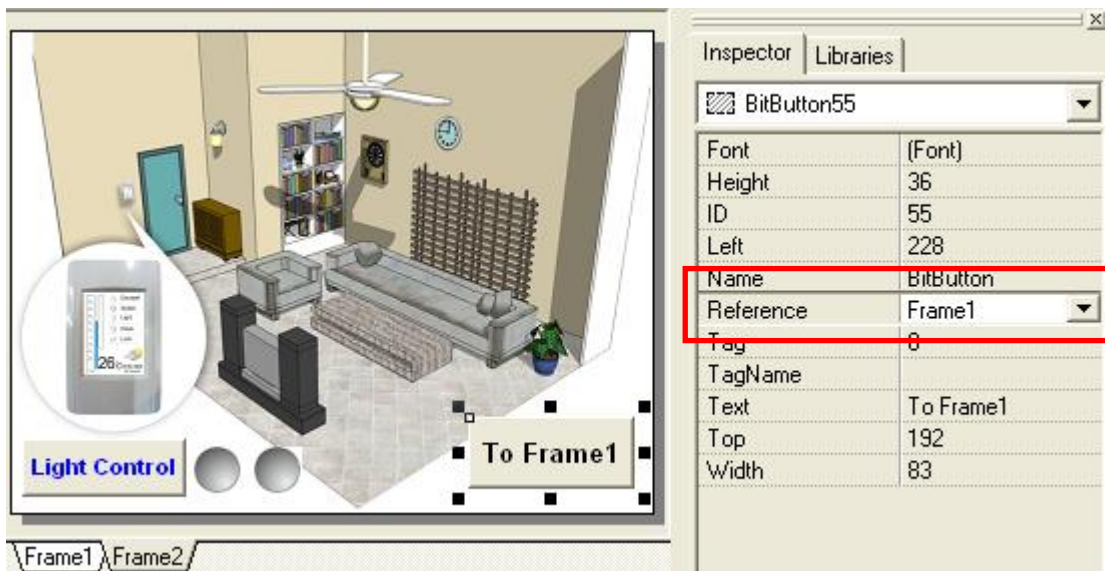
### Step 11: Create the light displays.

Refer to the steps of the Step 4, create 2 light displays and assign the “I\_7055\_1\_DO0” and “I\_7055\_1\_DO1” to the “TagName”.



### Step 12: Create a frame switch for Frame2.

Refer to the Step 7, create a frame switch. You can copy and paste the frame switch from Frame1, then change the “Reference” to “Frame1” and edit the “Text” to display.



Now, the frame design is done. Next chapter will show you how to use “Ladder Designer” to edit a LD program.

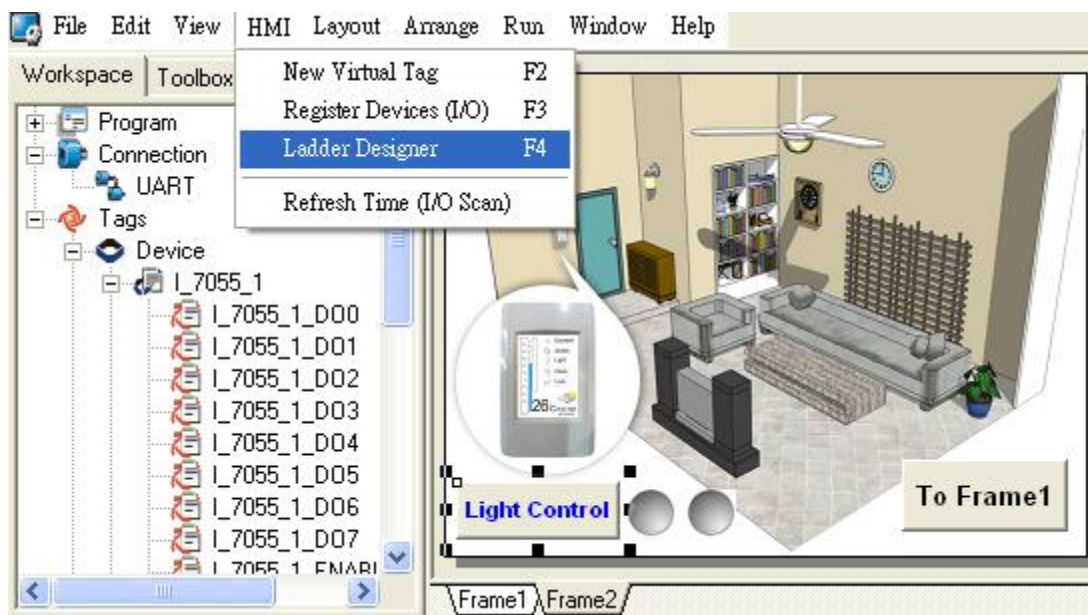


### 3.3.2 Edit a LD Program using “Ladder Designer”

In this demo, we use the “Light Control” button (V1) to control 2 lights (DO0 and DO1 of I-7055D module).

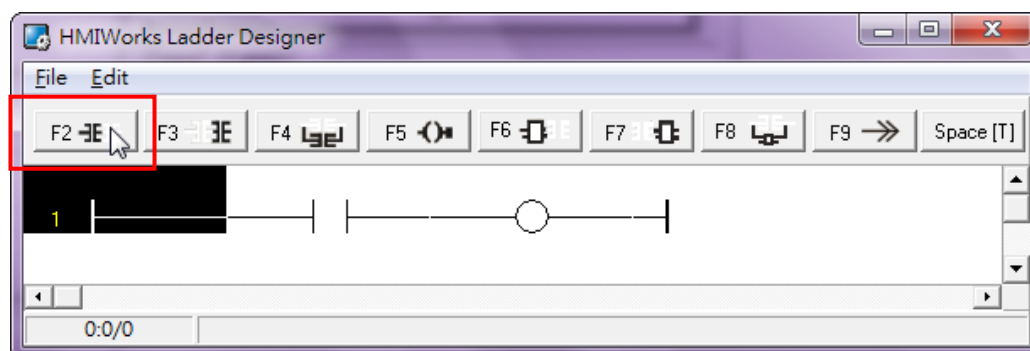
Step 1: Open the “Ladder Designer”.

- In the Frame2, click the “Light Control” button.
- Press the menu [HMI] > [Ladder Designer] or “F4” of the key board to open the “Ladder Designer”.

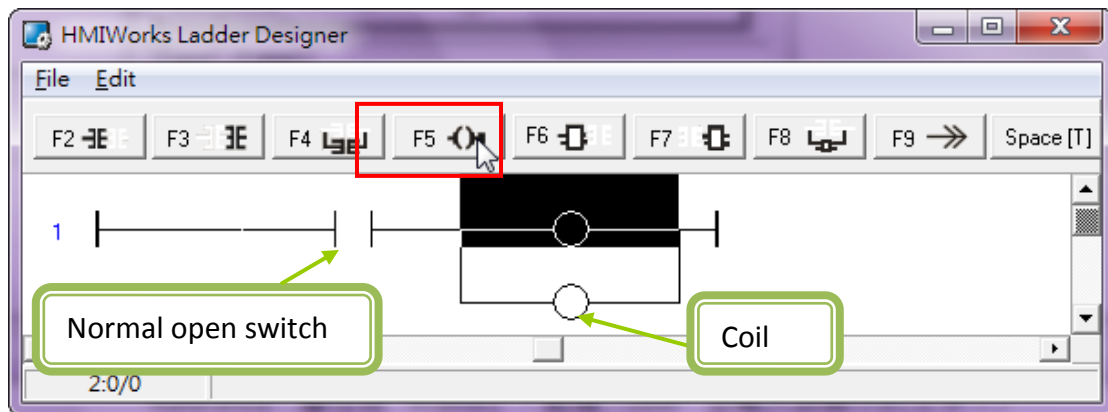


Step 2: Edit the LD program.

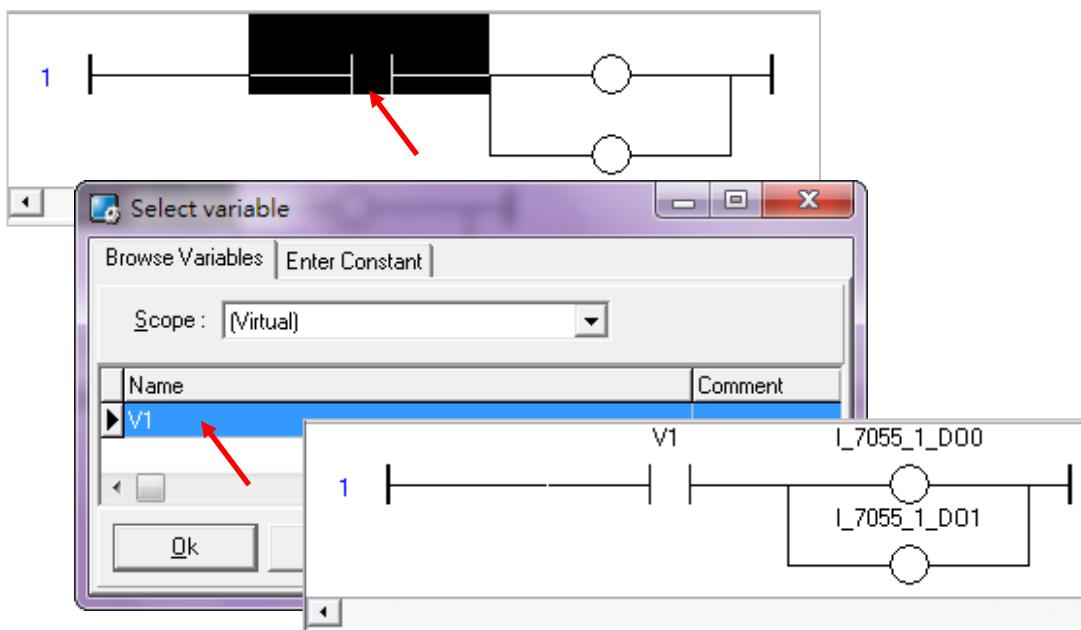
- Click “F2” to insert a “Contact”.



- b. Select the “Coil” and click the “F5” to add a new Coil as below.

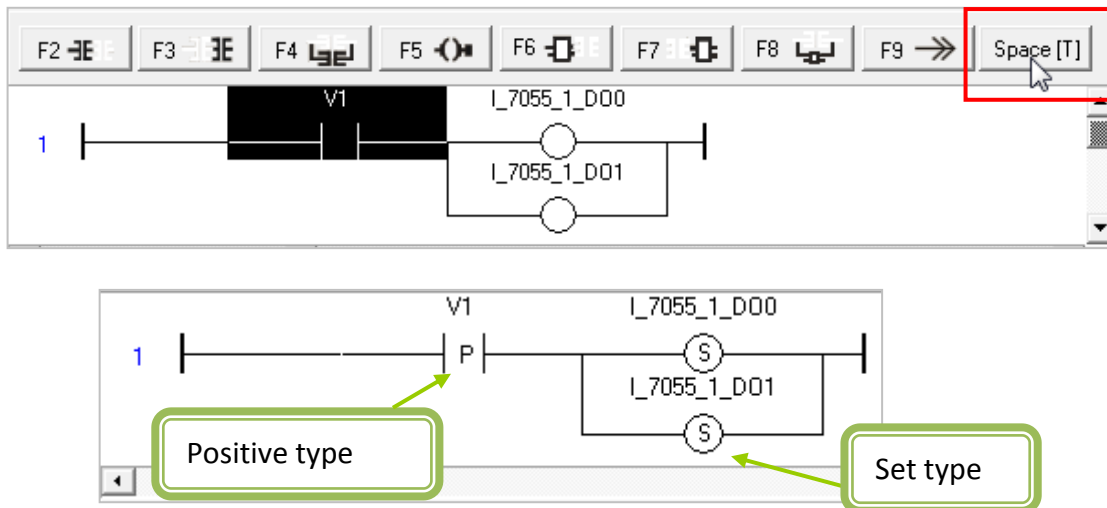


Step 3: Assign variables. Double click the “normal open switch”, and select the variable “V1”; repeat the same step to assign variables to the coils. (I\_7055\_1\_DO0/DO1)

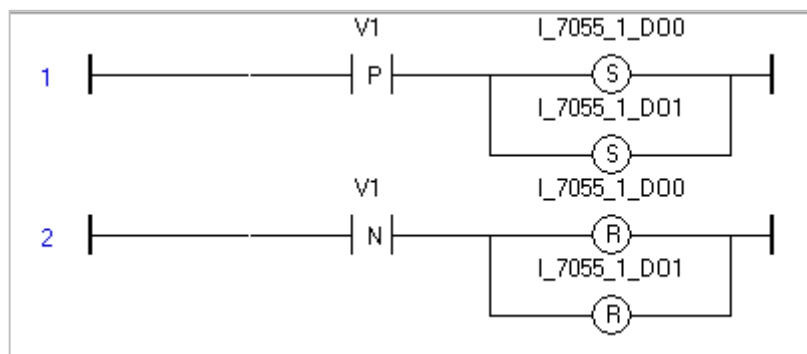


Step 4: Change the type for the switch and the coils.

- a. Select the “V1 Switch” and click the “Space [T]” (or the “Space” or “P” of the key board) to switch the type to “Positive (P)”.
- b. The similar way (or “S” key) to switch the type of Coils to “Set (S)”.



Step 5: As the previous step, create another Contact with 2 Coils but set the types as “Negative (N)” and “Reset (R)” as the picture below.

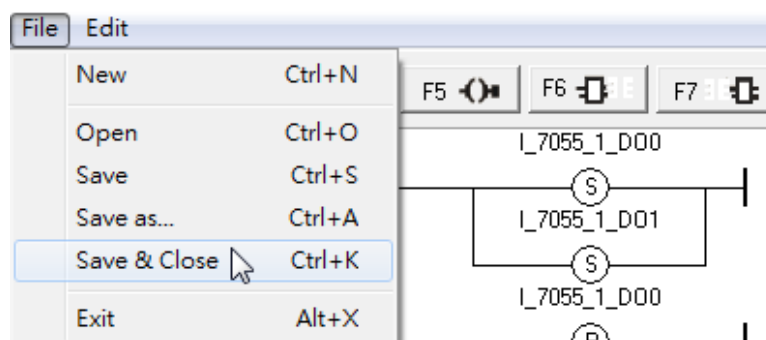


**Description:**

When trigger the V1 from OFF to ON, set the DO0, DO1 of I-7055D to ON.

When trigger the V1 from ON to OFF, set the DO0, DO1 of I-7055D to OFF.

Step 6: Now the LD program is done. Click the menu [File] > [Save & Close] to save project and exit the software.





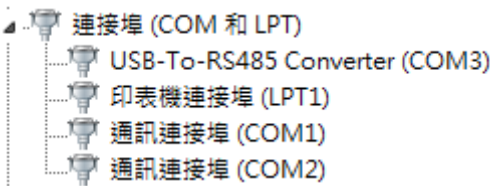
### 3.3.3 Device Setup (TouchPAD)

Please refer to [Section 3.1.2](#), select the menu [Run] > [Setup Device (TouchPAD)] to set up the download interface.

#### Tips & Warnings



To know the COM number your PC used, please check it from the “Device Manager” of your PC.



### 3.3.4 Download Project

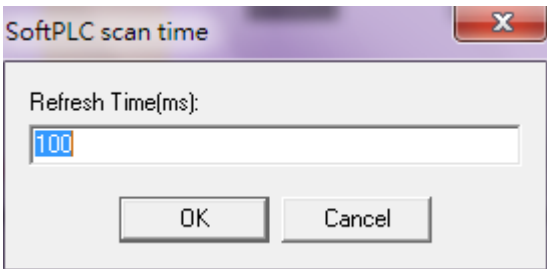
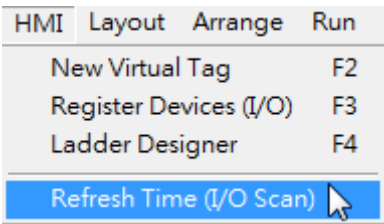
Turn the Rotary Switch on the backplane of the TPD-280 to 1 (Update Mode) and reset the TPD-280, then select the menu [Run] > [Run] to compile, build and download the project to TouchPAD. When finish, turn the Rotary Switch to 0 (Run Mode) and restart. (Refer to [Section 3.1.3](#))

#### Tips & Warnings



**How to speed up the response time of the components?**

- Select the menu [HMI] > [Refresh Time (I/O Scan)]
- Change the Refresh Time



## 3.4 Demo 3

(Multi HMI with ISaGRAF PAC: Light, Temperature, Communication Detector)

We have learned the I/O connection, component creation and HMI Ladder Designer in the Demo 2. We will introduce Demo 3 briefly.

In Demo 3, there are 2 TPD-283 linking to an ISaGRAF PAC ( $\mu$ PAC-7186EG, as a Modbus TCP Server) to read/write I/O modules (M-7055D, M-7018Z) which Modbus Tags are configured by ISaGRAF program.

Frame1:   Light display/control (M-7055D-DI/DO) x 8  
            Temperature display (M-7018Z ch0) x 1  
            Communication detector ( $\mu$ PAC-7186EG) x 1  
            Control button x 2

### Tips & Warnings

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Note: When using DCON Utility to configure the M-7018Z that uses Modbus RTU of RS-485 Port to connect with the TouchPAD, please set the “Dataformat” as "Engineering" (“Protocol” as Modbus RTU) for the M-7018Z.

Note: If you use the later version – HMIWorks v2.02 or later, please set the “Dataformat” as “2’s complement”.

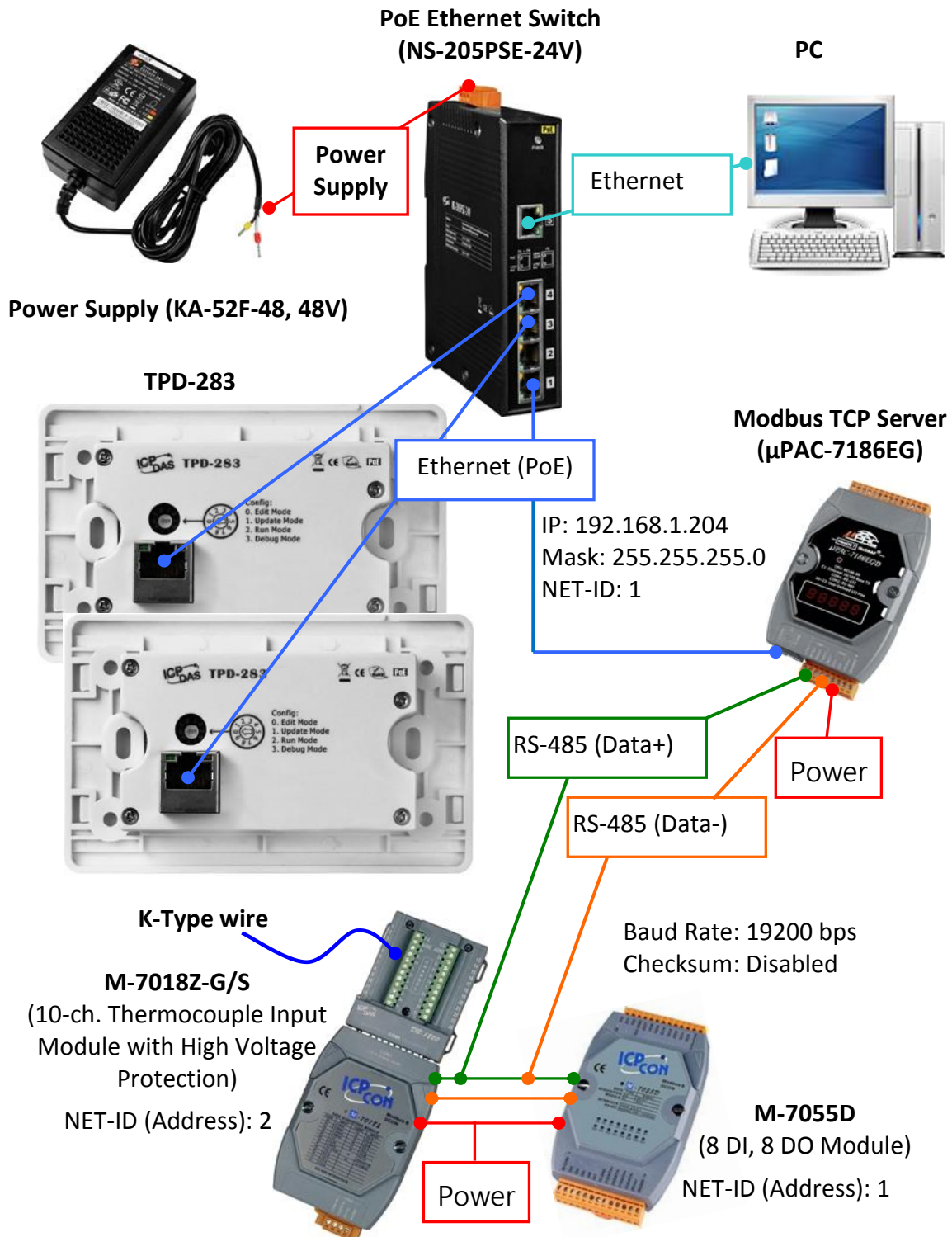
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Refer to [Appendix A](#) and [Appendix B](#) to get more information about the driver download of the converter I-7561 and the configuration of the digit/analog I/O modules.

Refer to [Appendix D](#) to get more information about the ISaGRAF PAC ( $\mu$ PAC-7186EG) and the ISaGRAF programs.

### Hardware Devices :

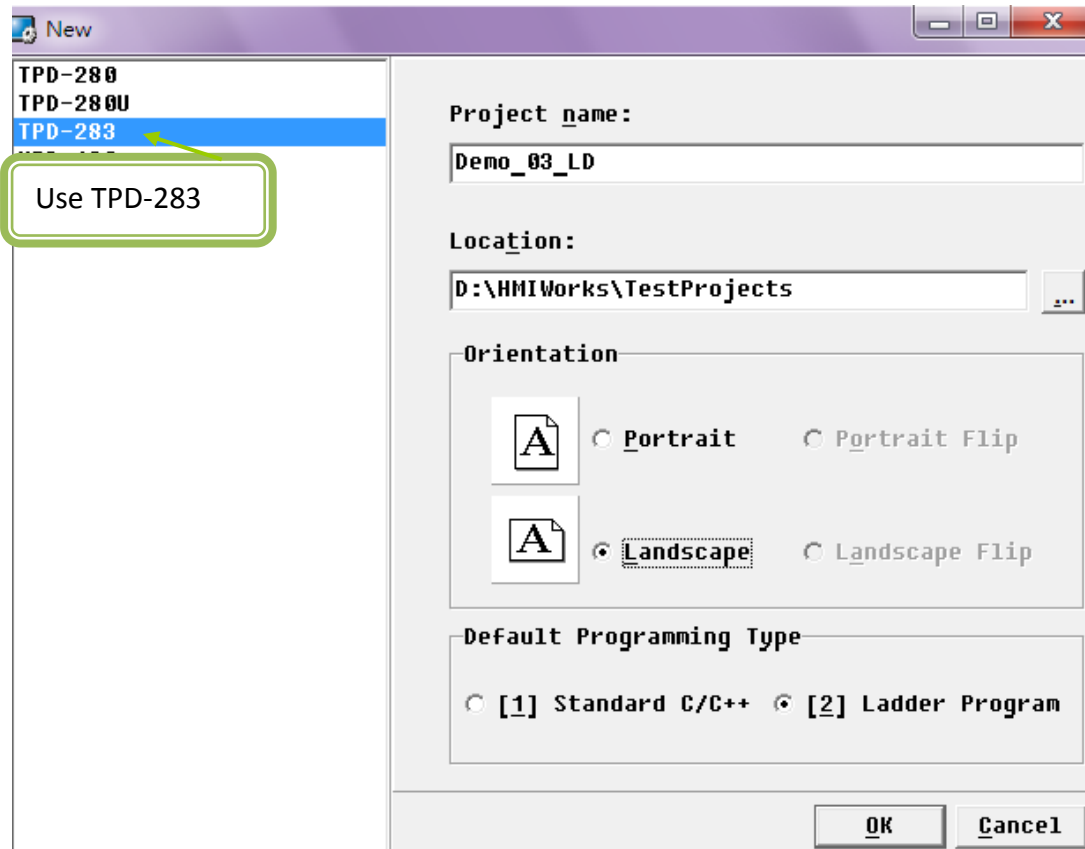
Using TPD-283 (Web type x2),  $\mu$ PAC-7186EG, M-7055D, M-7018Z for Demo 3



Note : The “Ethernet” and “Power-over-Ethernet (PoE)” devices both use the normal Ethernet cable, but the PoE series can carry the data and the power through the Ethernet cable.

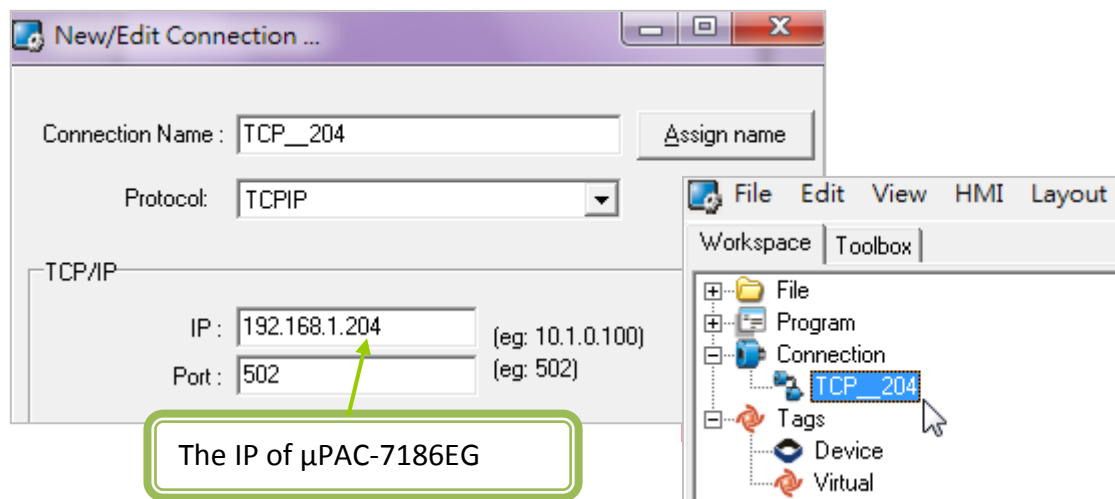
### 3.4.1 HMI Frame Design

Step 1: Create a new TPD-283 project in Ladder program. (Refer [Section 2.2](#))



Step 2: Create a connection (TCP/IP). (Refer [Section 3.2.1](#))

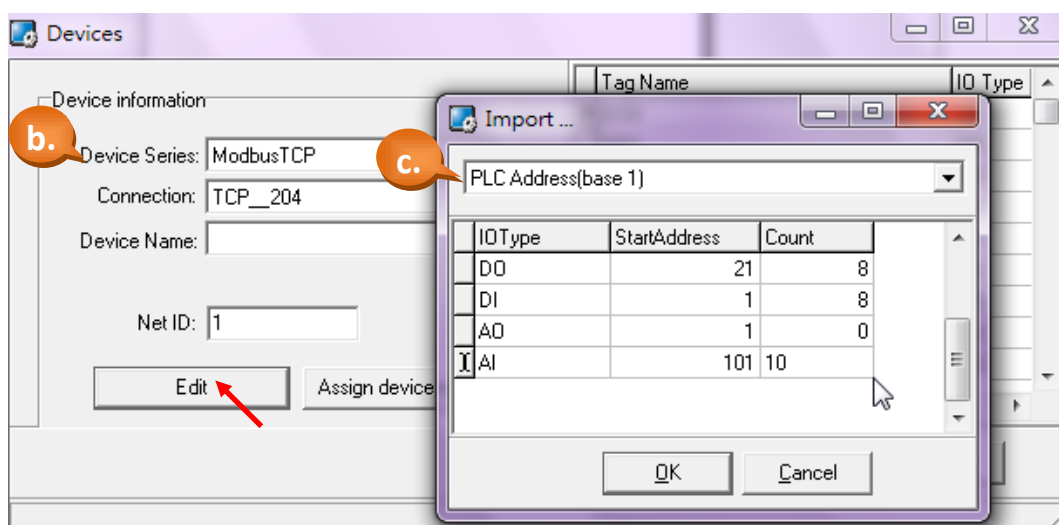
IP : Insert the IP of the device (controller) that connects with the TouchPAD (This demo:  $\mu$ PAC-7186EG).



**Step 3: Configure the I/O Tags.**

(Device:  $\mu$ PAC-7186EG, refer to the Step 3 of [Section 3.2.1](#))

- In the Workspace, right click on "Device" > "New Device".
- Set "Device Series" to "Modbus TCP" and set "Connection" to "TCP\_204" that created in the previous step, and then press "Edit" button.
- We pre-configure the address of the Modbus Tags in the ISaGRAF program (DO0 ~ DO7 = 21 ~ 28 ; DI0 ~ DI7 = 01 ~ 08 ; AI0 ~ AI9 = 101 ~ 110, refer to [Appendix D](#)), please assign the address to the "StartAddress" and "Count" column of the "Import..." window. Then, give a "Device Name".



**Step 4: Set up the background picture.**

Follow the same steps in the Demo 2 ([Section 3.2.1](#) Step 9) to create and set up the background picture.

\* Picture size: 320 (Width) x 240 (Height)



Step 5: Create the light display/control.

Follow the same steps in the Demo 2 ([Section 3.2.1](#) Step 4) to create 8 DI/DO lights.



Step 6: Create the temperature display. (This demo: AI0)

Follow the same steps in the Demo 2 ([Section 3.2.1](#) Step 5) to create a “Slider” (Set the Max=1000, due to the K-type will show 3 digits for the Modbus I/O.) and a “Label” (“TagName”= AI0) to display the temperature value.





## Tips & Warnings



The decimal number of M-7018Z for K-type will be 1, in this case, the 269 means Centigrade degree 26.9. If you need to show the decimal point, please refer to [Appendix E](#).

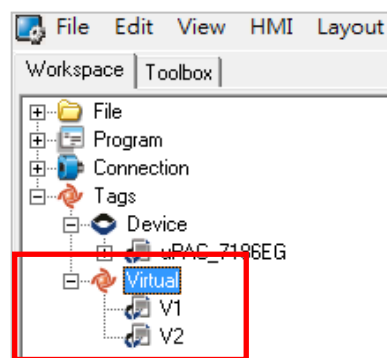
### Step 7: Create the communication detector.

Follow the same steps in the Demo 2 ([Section 3.2.1](#) Step 6) to create a communication detector for  $\mu$ PAC-7186EG.



### Step 8: Create the Virtual Tags (V1, V2)

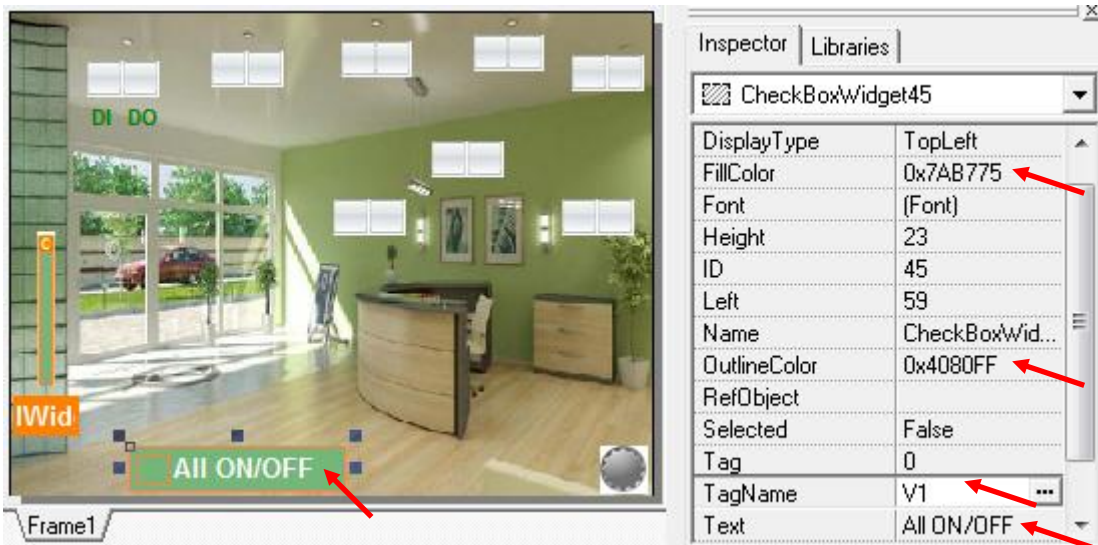
Follow the same steps in the Demo 2 ([Section 3.2.1](#) Step 6) to create 2 Virtual Tags.



### Step 9: Create the Check Box (“All ON/OFF” switch button).

- As the picture below, select the “CheckBox” in the “Toolbox- Widget (Ctrl+2)” and drag a rectangle on the Frame1.

- b. In the Inspector, set “TagName” as “V1” and change color or font by yourself.  
(The Ladder program for this demo will be introduced in the next section.)



Step 10: Create another Check Box (“Saving Mode” switch button).

Follow the previous step to create another “CheckBox” and set its “TagName” as “V2”.





## 3.4.2 Use “Ladder Designer” to edit LD Program

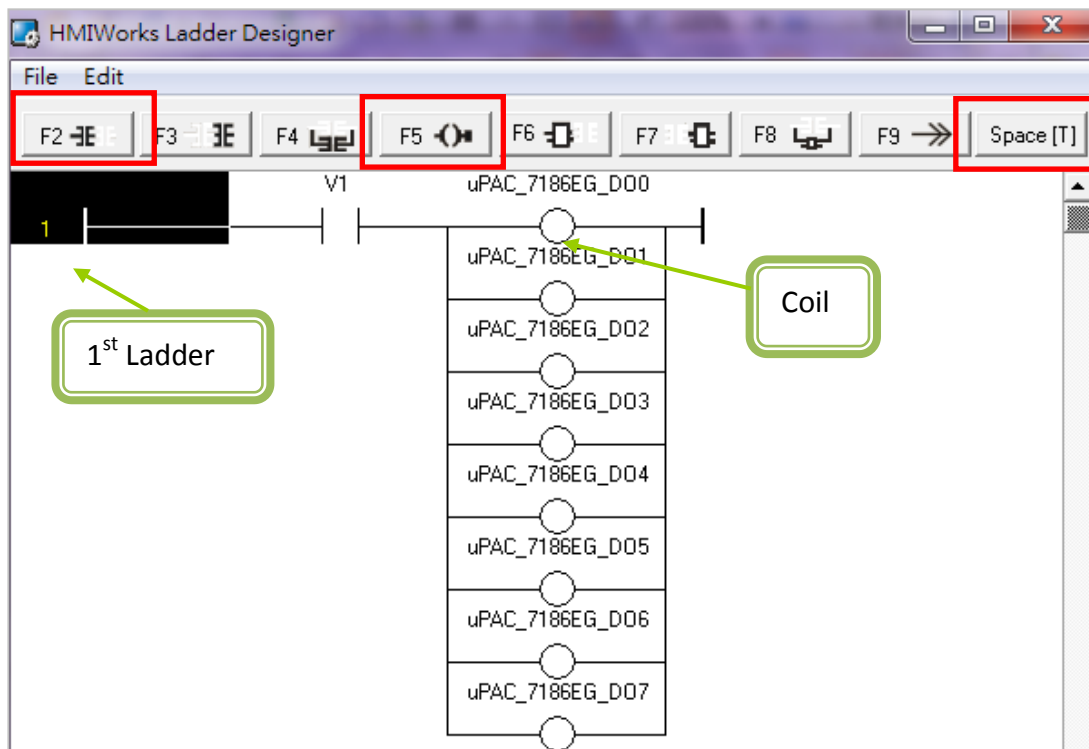
This section will introduce the Ladder program for the “All ON/OFF” and “Saving Mode” switches that created in the previous section.

Step 1: Open the “Ladder Designer”.

Press the menu [HMI] > [Ladder Designer] or “F4” of the key board to open the “Ladder Designer”.

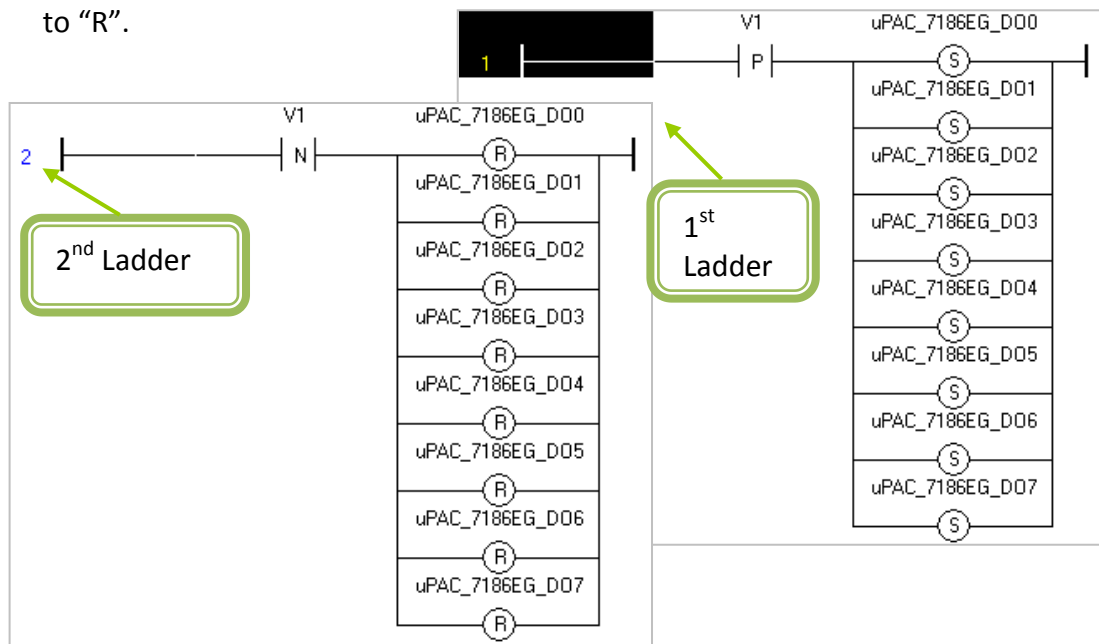
Step 2: Edit the “All ON/OFF” Ladder program.

- Click “F2” to insert a Contact. Select the Coil and then click “F5” to add 7 more Coils.
- Double click the switch and the Coils to assign the variables as below. (Switch: “V1”, Coils: “DO0 ~ DO7”)



- Click on the 1<sup>st</sup> Ladder and select the menu “Edit” > “Duplicate” or use key board “Ctrl+D” to copy a Ladder under the 1<sup>st</sup> Ladder.
- In the 1<sup>st</sup> Ladder, click “Space [T]” to change the types of the “V1” to “P” and the Coil to “S”. (Refer to [Section 3.2.2](#) step 4)

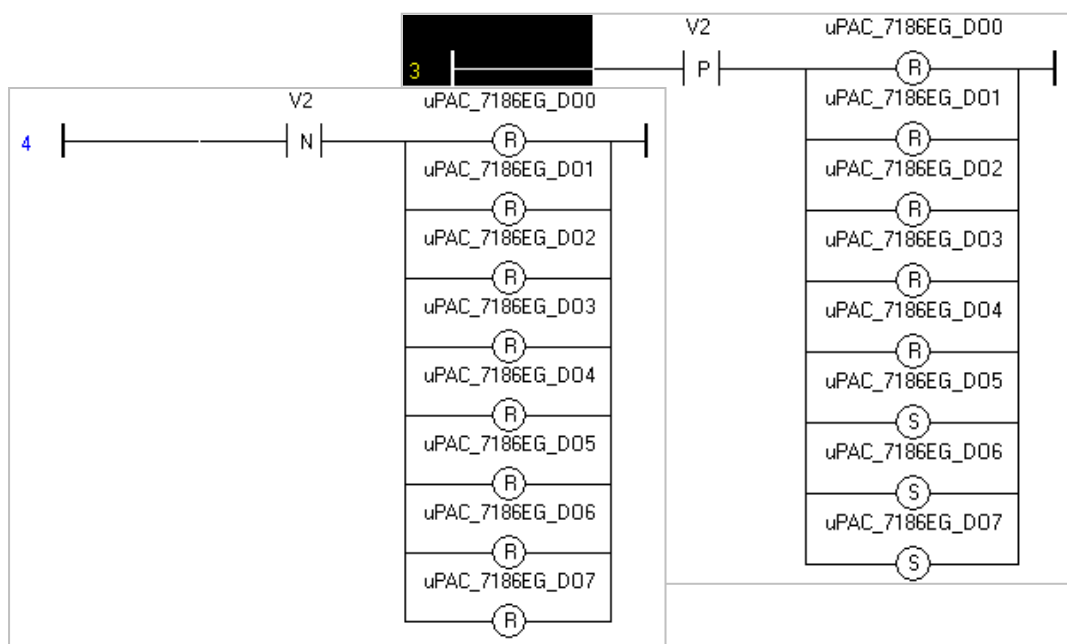
- e. In the 2<sup>nd</sup> Ladder, click “Space [T]” to change the types of the “V1” to “N” and the Coil to “R”.



### Step 3: Edit the “Saving Mode” Ladder program.

Description: When click this button, turn on the lights of DO5~7 and turn off the lights of DO0~4, then click the 2<sup>nd</sup> time, turn off all lights.

- As the same steps of Step 2, create the “V2” Switch and Coils.
- Click “Space [T]” to change “V2” to “P”, DO0~4 to “R” and DO5~7 to “S”.
- Use the same steps to set the 4<sup>th</sup> Ladder: Switch to “N” and Coil to “R”.



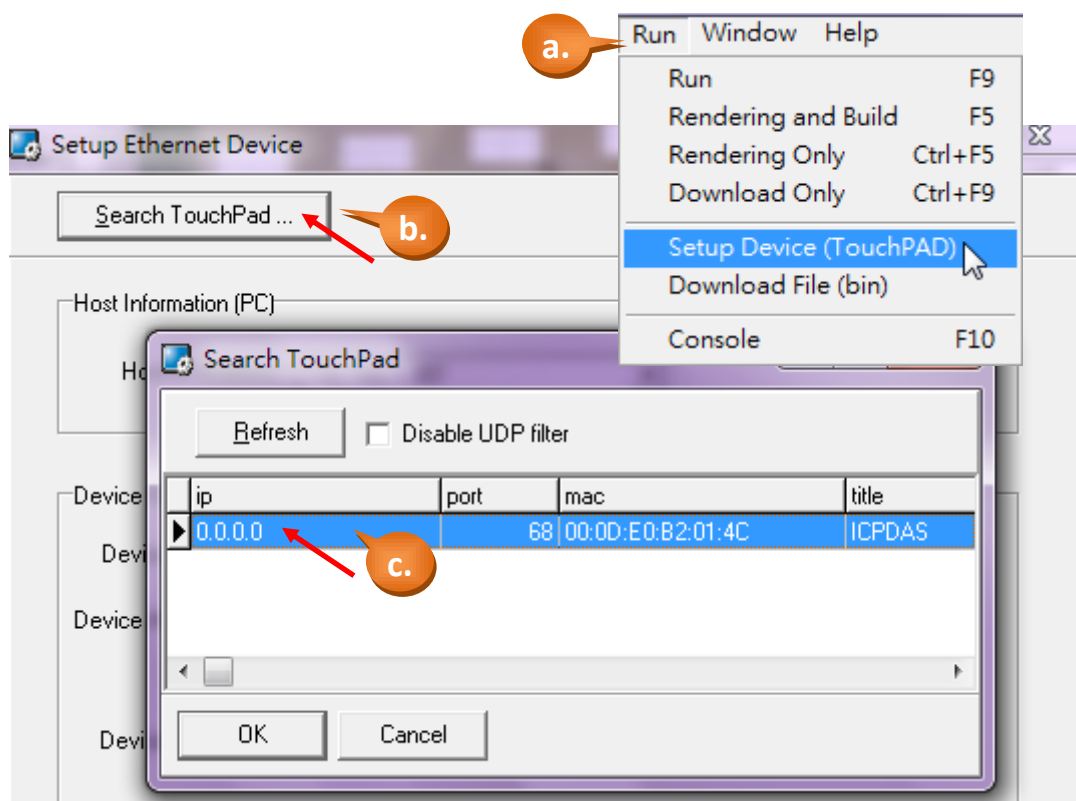
### 3.4.3 Device Setup (TouchPAD)

The project design is finished in the previous section, here will download the project to the TouchPAD. In Demo 3, there are 2 Web series TouchPAD (TPD-283) that must be configured and assigned the IP before download the project.

The default setting (on the bag) of the TPD-283 is “IP = 192.168.255.1”, “Gateway = 192.168.0.1” and “Mask = 255.255.0.0”. Of course, this may not suitable and need to change. First, make sure the hardware network is connected (refer to [Section 3.3](#)), then search the TPD-283 and set up the IP (one TouchPAD per time).

#### Step 1: Set up the TouchPAD IP

- Select the menu [Run] > [Setup Device (TouchPAD)] to enter “Setup Ethernet Device” window.
- Click “Search TouchPAD...” to search the TouchPAD in the network. If your TPD-283 is first time setting or in the different sub domain, please turn the rotary switch to 1 and reset the TPD-283, then search again (about 40 seconds, then IP = 0.0.0.0)
- Double click the searched device for setup.



- d. Use the MAC address on the back plane of TPD-283 to identify the TPD-283.

Set up the device as the picture below:

“Host IP Address” (PC): IP address of the PC installed the HMIWorks

“Device IP address” (middle): IP address for the TouchPAD

“Device IP address” (down): IP address used for downloading only

## Tips & Warnings



Note: If set IP of the TouchPAD as “DHCP”, it needs to wait a while for DHCP assigning IP to TouchPAD. The IP setting is saved in the project not in the TouchPAD, so the IP of TPD-283 will not work until the project is downloaded successfully.

**\*\* After this step, please go to [next section](#) to download project first.**

**Then set up the 2<sup>nd</sup> TouchPAD.**

The HMIWorks can configure one TouchPAD each time. **When replace a new TouchPAD (Ethernet version), user must execute "Setup Device (TouchPAD)" to search TouchPAD again.**

- e. Follow the same steps to set up the 2<sup>nd</sup> TPD-283. For example:  
“Device IP address” (middle): set as “192.168.1.203” and select “Static IP”  
“Device IP address” (down): set as “192.168.1.205”

The screenshot shows a window titled "Setup Ethernet Device". It contains three main sections, each with a red box highlighting the IP address field:

- Host Information (PC):** The "Host IP Address" field is set to "192.168.1.207".
- Device Runtime Information (TouchPAD):** The "Device IP address" field is set to "192.168.1.203". The "Static IP" radio button is selected, and the "DHCP" radio button is unselected.
- IP used for downloading only (TouchPAD):** The "Device IP address" field is set to "192.168.1.205".

### 3.4.4 Download Project

The rotary switch has turned to 1 and restart in the previous section "[3.3.3 Device Setup](#)", please select [Run] > [Run] to compile and download the project to TouchPAD. (Refer to the step 2~3 of [Section 3.1.3](#). When first time download project, it will stay about 20 seconds and then begin to download.)

#### Tips & Warnings



Note: The rotary switch of TPD-283 is turned to Mode 1 only when the first time IP setting or the project download failing, beside those situations, please turn the switch to Mode 0 and restart. Before download the project, please execute "[Device Setup](#)" and click the HMIWorks menu [Run] > [Run] to compile & download the project, it will restart automatically.

# Appendix A. Download Information

This manual is only a brief introduction for TouchPAD functions. Please go to the following websites for more detail information about TouchPAD series.

User Manual :

<http://ftp.icpdas.com/pub/cd/touchpad/document/english/>

Products Website :

[http://www.icpdas.com.tw/product/solutions/hmi\\_touch\\_monitor/touchpad/tpd-280.html](http://www.icpdas.com.tw/product/solutions/hmi_touch_monitor/touchpad/tpd-280.html)

[http://www.icpdas.com.tw/product/solutions/hmi\\_touch\\_monitor/touchpad/tpd-430.html](http://www.icpdas.com.tw/product/solutions/hmi_touch_monitor/touchpad/tpd-430.html)

[http://www.icpdas.com.tw/product/solutions/hmi\\_touch\\_monitor/touchpad/vpd-130.html](http://www.icpdas.com.tw/product/solutions/hmi_touch_monitor/touchpad/vpd-130.html)

Products Data Sheets :

[http://ftp.icpdas.com/pub/cd/touchpad/document/english/data\\_sheet/tpd-280\(u\)\\_tpd-283\(en\).pdf](http://ftp.icpdas.com/pub/cd/touchpad/document/english/data_sheet/tpd-280(u)_tpd-283(en).pdf)

[http://ftp.icpdas.com/pub/cd/touchpad/document/english/data\\_sheet/tpd-430\\_tpd-430-eu\(en\).pdf](http://ftp.icpdas.com/pub/cd/touchpad/document/english/data_sheet/tpd-430_tpd-430-eu(en).pdf)

[http://ftp.icpdas.com/pub/cd/touchpad/document/english/data\\_sheet/vpd-130\\_vpd130n\(en\).pdf](http://ftp.icpdas.com/pub/cd/touchpad/document/english/data_sheet/vpd-130_vpd130n(en).pdf)

Download I-7561 (USB to RS-485 converter) Driver :

<ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/7000/756x/>

I-7000 I/O Modules (Support DCON Protocol) :

[http://www.icpdas.com/products/Remote\\_IO/i-7000/i-7000\\_list.htm](http://www.icpdas.com/products/Remote_IO/i-7000/i-7000_list.htm)

M-7000 I/O Modules (Support Modbus RTU & DCON Protocols) :

[http://www.icpdas.com/products/Remote\\_IO/m-7000/m-7000\\_list.htm](http://www.icpdas.com/products/Remote_IO/m-7000/m-7000_list.htm)

ISaGRAF Website :

<http://www.icpdas.com/products/PAC/i-8000/isagraf.htm>

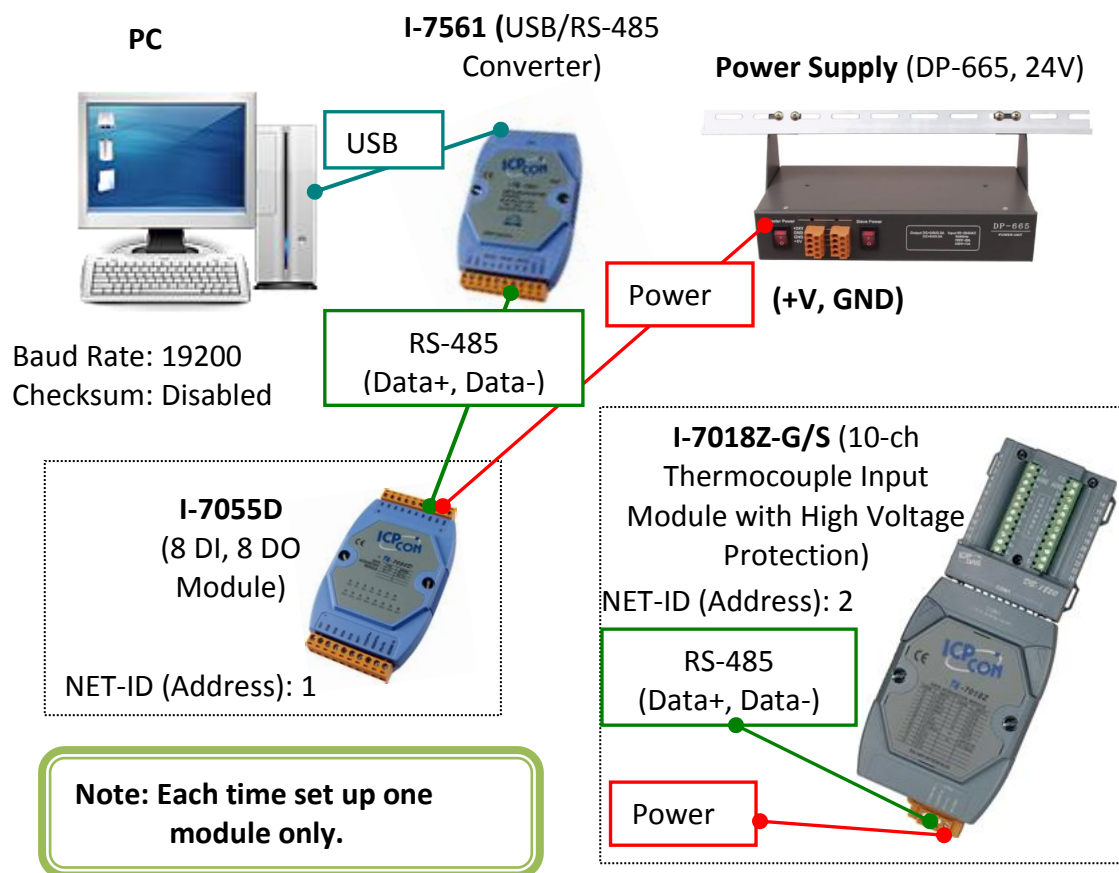
# Appendix B. Configure the I/O Module

This appendix will show you how to use DCON Utility to configure the Address, Net ID, Baud rate and Data format of the I/O module.

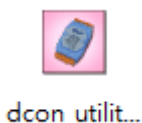
Please download the DCON Utility and its user manual at the website below:

[ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon\\_utility/](ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/)

## Hardware Wiring



## Software Installation

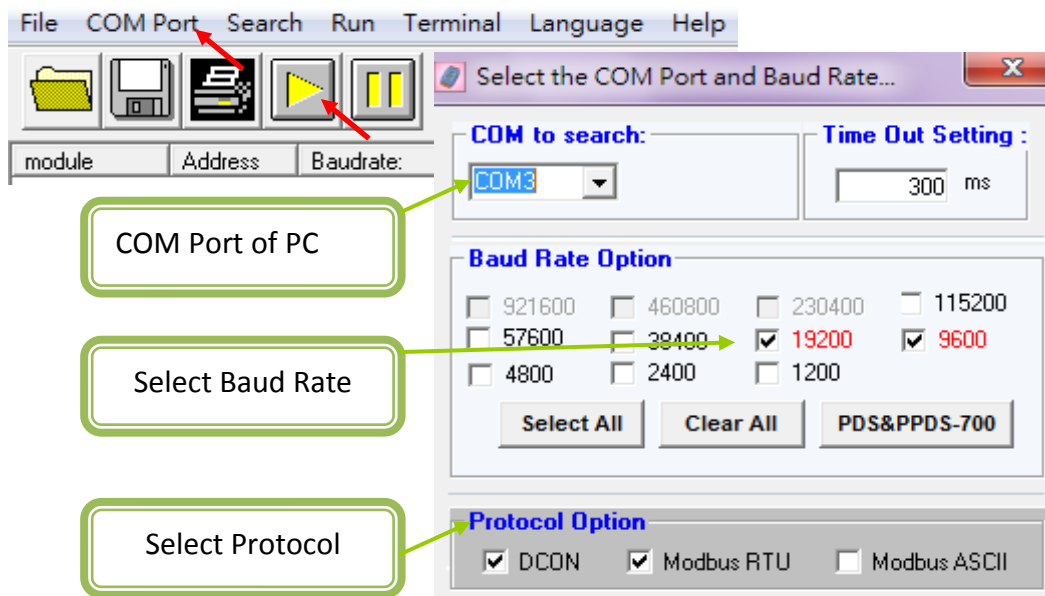


Double click the installation software icon and press "Next" to complete the installation.

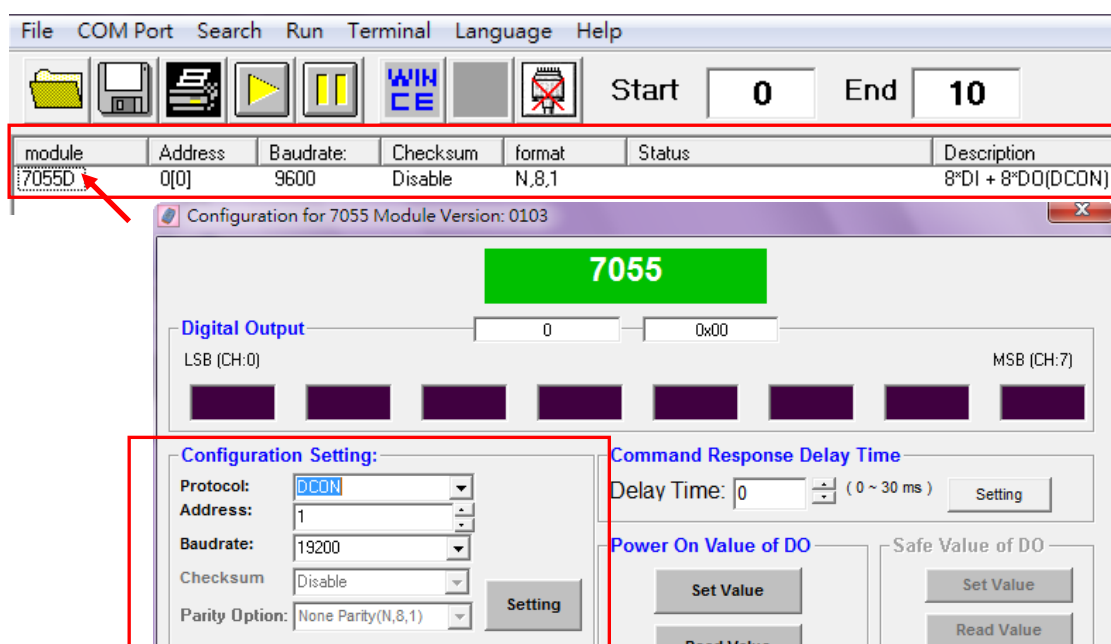
## I/O Configuration

### **I-7055D:**

- First, push the switch on the back case of the I-7055D to "Init" mode, and reset I-7055D.
- Run the "DCON Utility" from the icon on the desktop or the Start menu "Start" > "All Programs" > "ICPDAS" > "DCON\_Utility" > "DCON\_Utility".
- Click menu "COM Port" to set up the conditions, and click "Start Search".

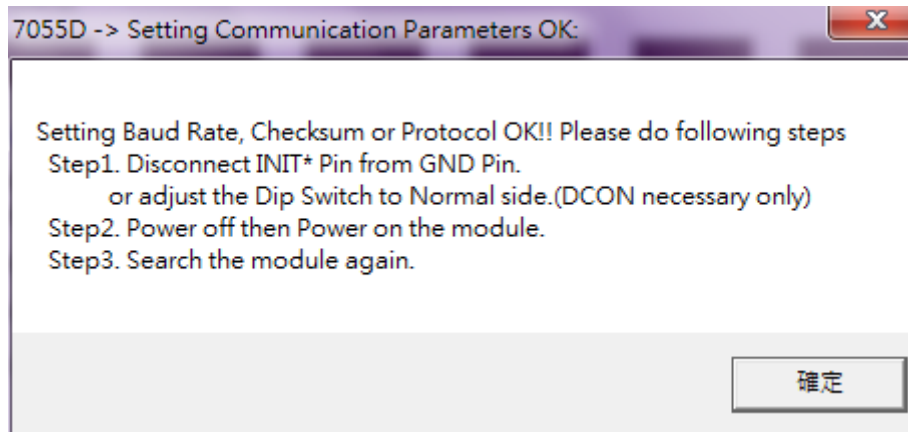


- In the I-7055D initial mode, click "7055D" to enter the configuration window.

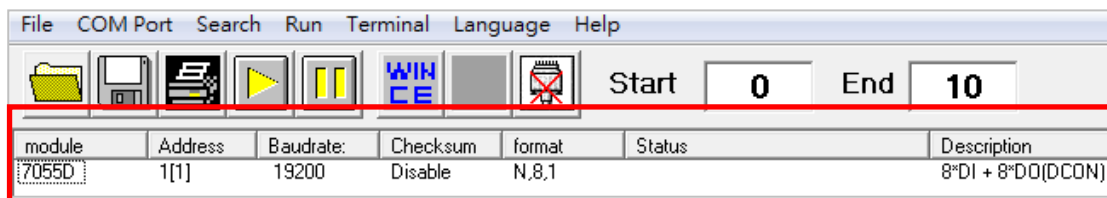




- e. Set Address = 1, Baud rate=19200, press “Setting”, and then the following prompt message will show up. Please click “OK”.

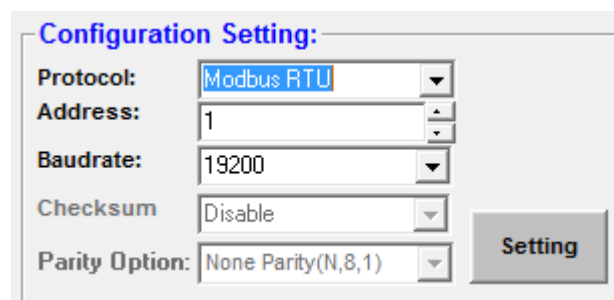


- f. Switch the I-7055 to the “Normal” mode and reset I-7055. Then, search module again to confirm the configuration.



#### M-7055D:

The setting is similar to I-7055D, but set “Protocol” as “Modbus RTU”.



#### I-7018Z:

Refer to the previous steps to configure this module. (As the picture below)

Configuration Setting:

Address = 2, Baud rate = 19200, Data format = Engineering

Channel Enable/Disable Setting:

This demo uses one channel only, so set the CH0 to “T/C K-type”.

## Tips & Warnings



**Note:** “T/C ?-type”, with the wire opening detection feature, cannot be selected when the channel is not using. As the picture below, if the yellow part shows “+9999.900”, that means the setting of “Input Range” is wrong, or the channel is not using but set as “T/C ?-type”.

And note that every channel must be checked.

CH	Input Range	CH : CJC
CH:0	+024.500	[0F] T/C K-type
CH:1	+00.1585	[05] +/- 2.5 V
CH:2	+00.3271	[05] +/- 2.5 V
CH:3	+00.4414	[05] +/- 2.5 V
CH:4	+00.5177	[05] +/- 2.5 V
CH:5	+00.5699	[05] +/- 2.5 V
CH:6	+00.6057	[05] +/- 2.5 V
CH:7	+00.6307	[05] +/- 2.5 V
CH:8	+00.6472	[05] +/- 2.5 V
CH:9	+00.6596	[05] +/- 2.5 V

### M-7018Z:

The setting is similar to I-7018Z, but set “Protocol” as “Modbus RTU”.

CH	Input Range	CH : CJC
CH:0	+026.000	[0F] T/C K-type
CH:1	+00.1594	[05] +/- 2.5 V
CH:2	+00.3297	[05] +/- 2.5 V
CH:3	+00.4432	[05] +/- 2.5 V
CH:4	+00.5191	[05] +/- 2.5 V

**Note:** If the RS-485 Port of the TouchPAD uses Modbus RTU protocol to connect M-7018Z, the M-7018Z must be set to "Engineering" (Modbus RTU).

**Note:** If you use the later version – HMIWorks v2.02 or later, please set the “Dataformat” as “2’s complement”.

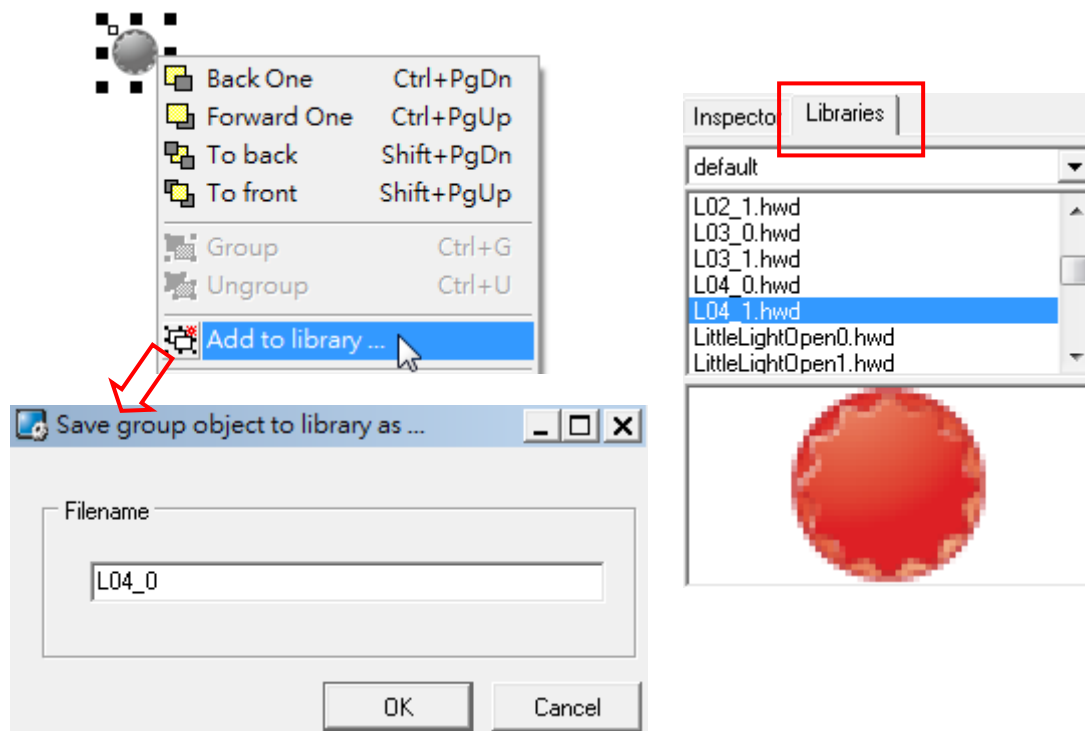
# Appendix C. Create Your Own GUI

The HMIWorks Libraries provides many pictures and icons of GUI (Graphical User Interface), and user can also create their own GUIs.

- a. First, in the MS “Paint”, open the picture file, then mouse click tool box to select all (or key board Ctrl+A) and copy (or key board Ctrl+C) the picture.



- b. Paste (or key board Ctrl+V) the picture to the HMI frame of HMIWorks, then mouse right click on the picture to select “Add to library...” and enter a name, such as “L04\_0”. (The light has two status: 0 means OFF, 1 means ON)
- c. Follow the same steps to create another picture (L04\_1).



# Appendix D. Configure & Program the ISaGRAF PAC

This chapter introduces the ISaGRAF program and ISaGRAF PAC used with TouchPAD in the Demo 3 ([Section 3.3](#)).

## ISaGRAF PAC Configuration:

The  $\mu$ PAC-7186EG setting in the Demo 3:

COM2: Master  
Baud rate: 19200  
IP: 192.168.1.204  
Mask: 255.255.255.0

Refer to  $\mu$ PAC-7186EG getting started (Section 3.7 & 3.8) for the setting steps:

[http://www.icpdas.com/products/PAC/i-8000/getting\\_started\\_manual.htm](http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm)

## ISaGRAF Variables:

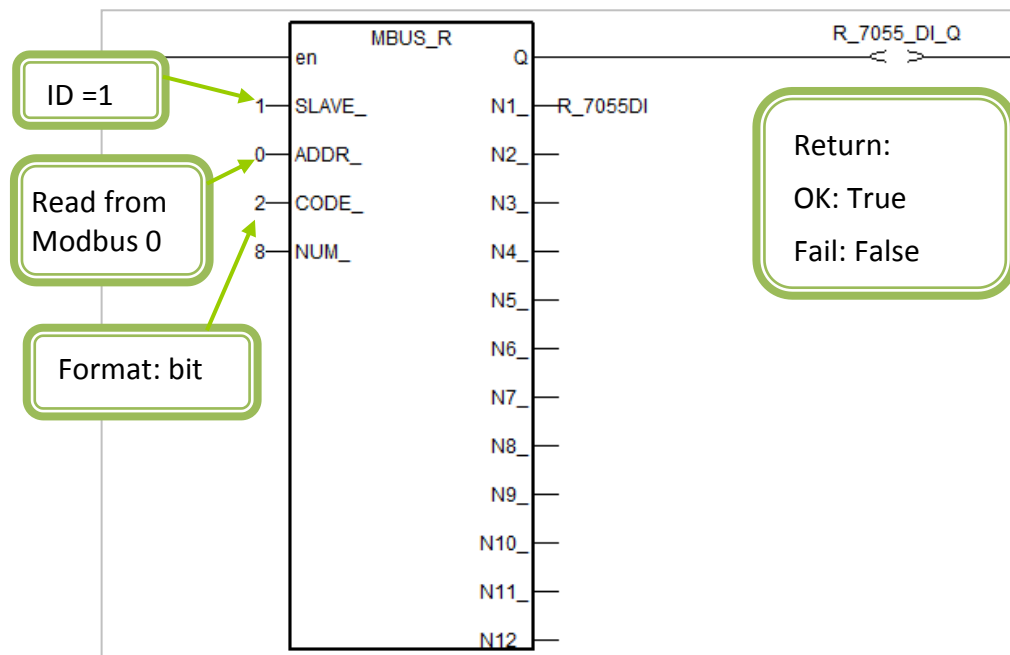
Variable Name	Address (Hex > Decimal)	Description
R7055_DO01 ~ 08	0015 ~ 001C → 21 ~ 28	M-7055D - DO0 ~ 7
R7055_DI01 ~ 08	0001 ~ 0008 → 1 ~ 8	M-7055D - DI0 ~ 7
R_7018Z01 ~ 10	0065 ~ 006E → 101 ~ 110	M-7018Z - AI0 ~ 9

Name	Attrib.	Addr.
R7055_DO01	[internal]	0015
R7055_DO02	[internal]	0016
R7055_DO03	[internal]	0017
R7055_DO04	[internal]	0018
R7055_DO05	[internal]	0019
R7055_DO06	[internal]	001A
R7055_DO07	[internal]	001B
R7055_DO08	[internal]	001C
R7055_DI01	[internal]	0001
R7055_DI02	[internal]	0002
R7055_DI03	[internal]	0003
R7055_DI04	[internal]	0004
R7055_DI05	[internal]	0005
R7055_DI06	[internal]	0006
R7055_DI07	[internal]	0007
R7055_DI08	[internal]	0008
R_7055_DI_Q	[internal]	001F
R_7055_DO_Q	[internal]	0020
R_7055_Q	[internal]	0000
R_7018Z_Q	[internal]	0021

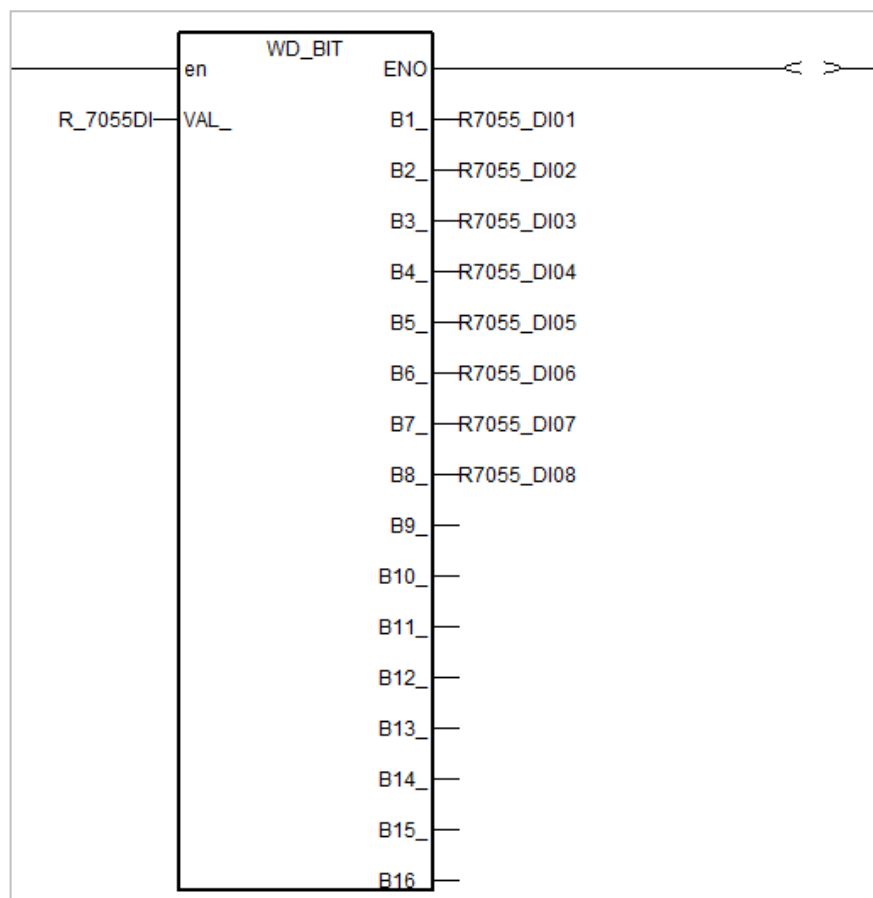
Name	Attrib.	Addr.
R_7018Z01	[internal, integer]	0065
R_7018Z02	[internal, integer]	0066
R_7018Z03	[internal, integer]	0067
R_7018Z04	[internal, integer]	0068
R_7018Z05	[internal, integer]	0069
R_7018Z06	[internal, integer]	006A
R_7018Z07	[internal, integer]	006B
R_7018Z08	[internal, integer]	006C
R_7018Z09	[internal, integer]	006D
R_7018Z10	[internal, integer]	006E
R_7055DI	[internal, integer]	0000
Temp7018Z01	[internal, integer]	0000

## ISaGRAF Program Description:

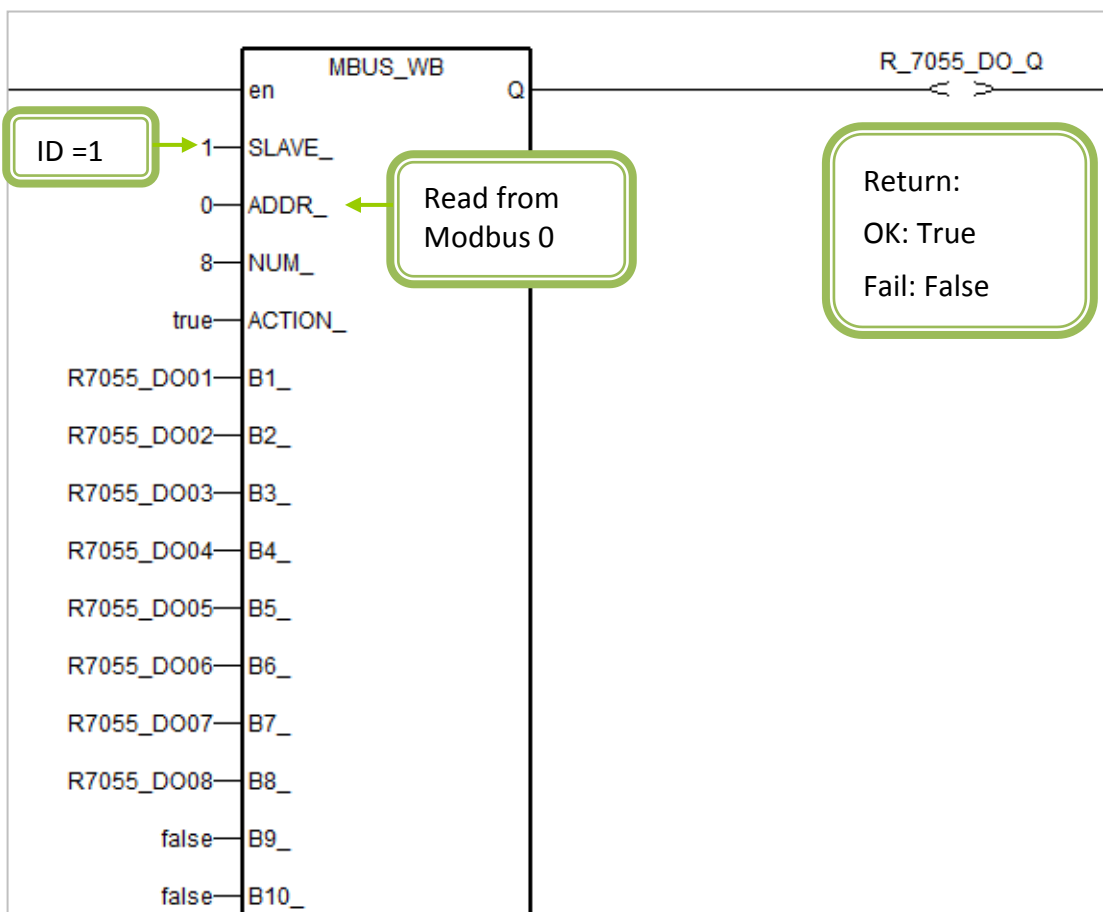
### Read 8 Booleans from the Modbus device:



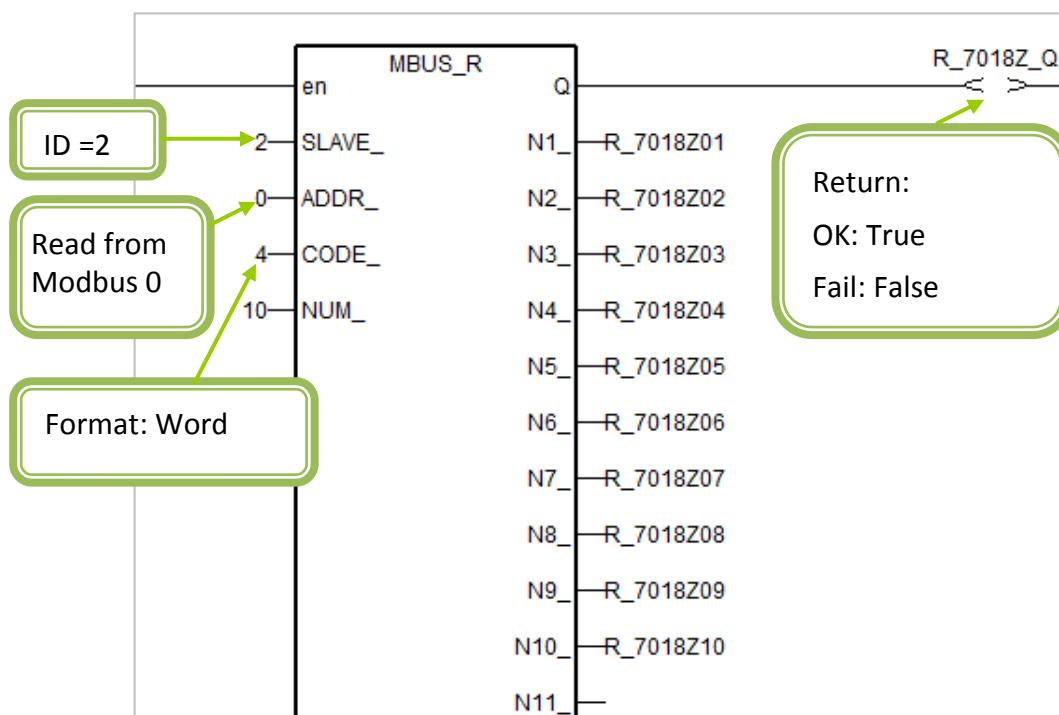
### Convert 1 Word (Signed 16-bit) to 16 Booleans:



### Write 8 Booleans to the Modbus device:



### Read 10 Words (Signed 16-bit) from the Modbus device:



# Appendix E. Display the Decimal Point

The numbers in the “Ladder Designer” are displayed in integer without decimal digit. In some case, you may need to calculate or display the decimal. This appendix introduces how to display the decimal point for the thermocouple input modules, I-7018Z (DCON protocol) and M-7018Z (Modbus protocol).

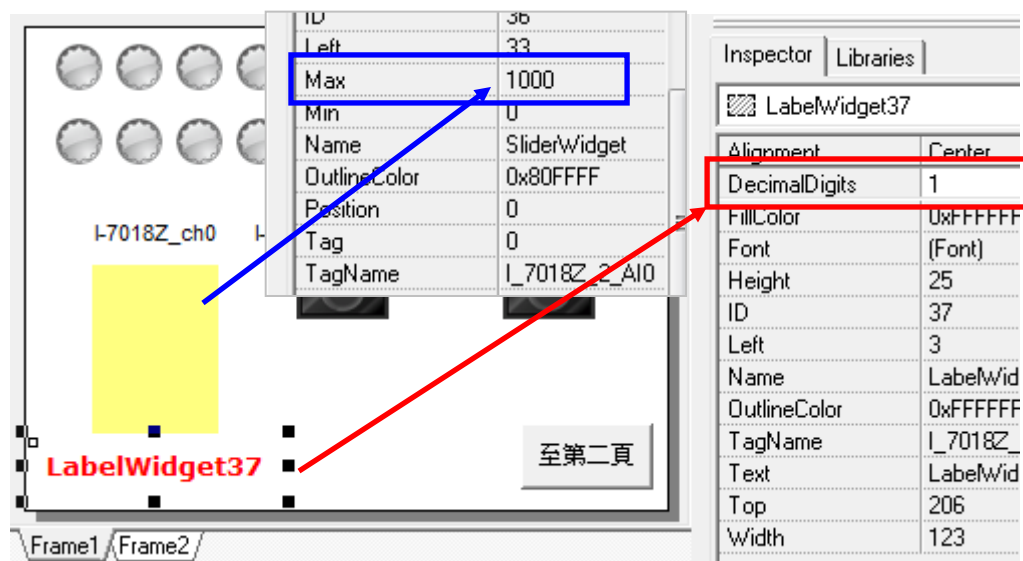
## I-7018Z Module

The “Ladder Designer” displays the received value only the integer part, ignore the decimal part (ex. 26.500 → 26). But you can display the decimal, such as “26.5”, by changing the “IO.hsf” file of the module. The “IO.hsf” of I-7018Z is in the directory: C:\ICPDAS\HMIWorks\_Standard\bin\Modules\I-7000\I-7018Z . Change it as below:

```
if ( VAR_VALUE($ENABLE_AI) && VAR_VALUE($R_ACTION))
{
    iRtn = dcon_ReadAIAI($DEVICE, $NETID, v_ai);
    v_ai[0] = v_ai[0] * 10;
    VAR_SET($AI0, v_ai[0]);
    VAR_SET($AI1, v_ai[1]);
    VAR_SET($AI2, v_ai[2]);
    VAR_SET($AI3, v_ai[3]);
}
```

Add one line: v\_ai[0] = v\_ai[0] \* 10;  
so, AI0 value = “265” now.

Then, in HMIWorks, set the “DecimalDigits” of “Lable” as 1 to display one decimal digit (26.5). Besides, the AIO value is changed from 26 to 265 now, the “Max” property must be changed to 1000 also if you use the Slider. Remember compile the project and download to the TouchPAD again.



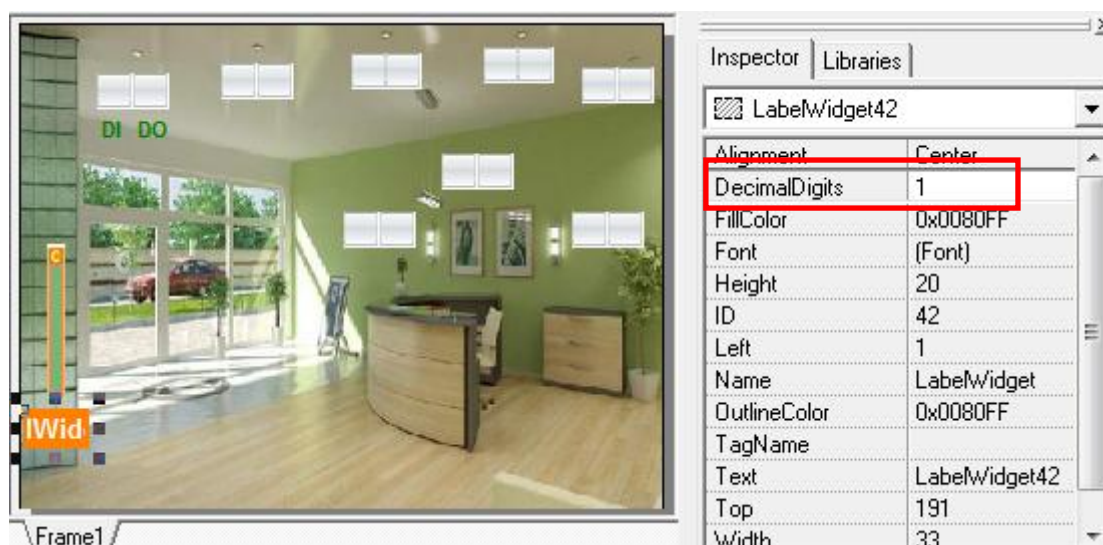
## M-7018Z Module

Please refer to the [product website](#) to check out the temperature input range and refer to the Section “3.5 Engineering Data Format Table” of the M-7018Z module manual to know the maximum decimal digits for every input type.

The Modbus protocol uses 2 bytes to access the data value, so the range value is **–32768 ~ +32767**. As the table below, when the input range enlarges  $10^n$  times, “n” is the decimal digit of the display value. For example of K-Type, if the input value is 26.500, the display value will be 265 (enlarge  $10^1$  times).

Input Type	Input Range	Display Range	Max. Decimal Digits
J	-210 ~ +760	-2100 ~ +7600	1
K	-270 ~ +1372	-2700 ~ +13720	1
T	-270 ~ +400	-2700 ~ +4000	1
E	-270 ~ +1000	-2700 ~ +10000	1
R	0 ~ +1768	0 ~ +17680	1
S	0 ~ +1768	0 ~ +17680	1
B	0 ~ +1820	0 ~ +18200	1
N	-270 ~ +1300	-2700 ~ +13000	1
C	0 ~ 2320	0 ~ 23200	1
L	-200 ~ +800	-2000 ~ +8000	2
M	-200 ~ +100	-20000 ~ +10000	1
L (DIN43710)	-200 ~ +900	-2000 ~ +9000	1

Therefore, the temperature “265” displayed on the TouchPAD actually is “26.5”. You need to change the “DecimalDigits” of the “Label” in the HMIWorks to 1, then compile / download the project to the TouchPAD again, and then the TouchPAD can display the decimal.





# Appendix F. Use USB to Download Program

TPD-280U/430/430-EU and VPD-130/130N both have a USB Port. After completing the HMIWorks project, **without** having to process the menu [Run] > [Setup Device], the user only needs to download program to the TouchPAD **via USB port**. (The feature is not yet support Windows 7, 64 bit)

## Install the TouchPAD USB Driver

Step 1: Turn the Rotary Switch of TouchPAD to the mode “9”.

First, you will see the “Waiting for connection...” screen on the TouchPAD, please connect the USB cable of TouchPAD to the PC.



Step 2: In the auto-run window of “Hardware Update Wizard”, do not connect to “Windows Update” to search, please select “No, not this time”.



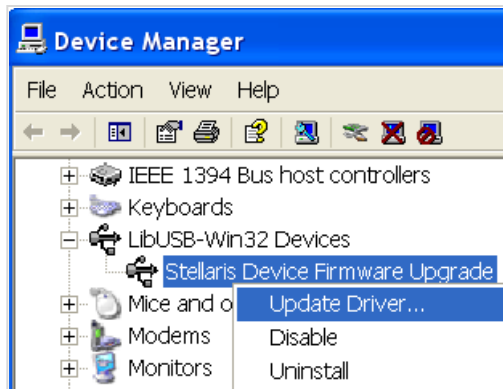
## Tips & Warnings



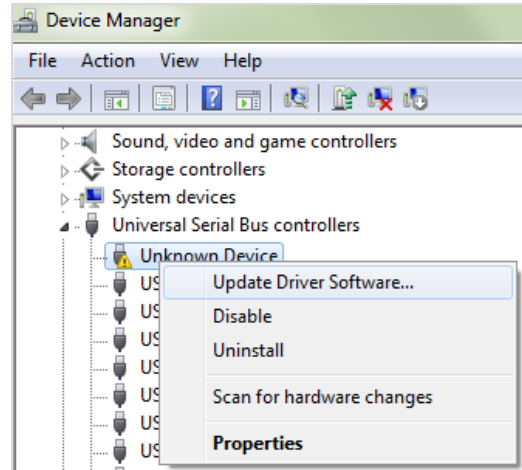
**Note: The PC with different OS may use the different installation steps.**

If your PC does not pop up the window of “Hardware Update Wizard”, please execute the “Device Manager” in “Hardware” of “My Computer” to install the driver.

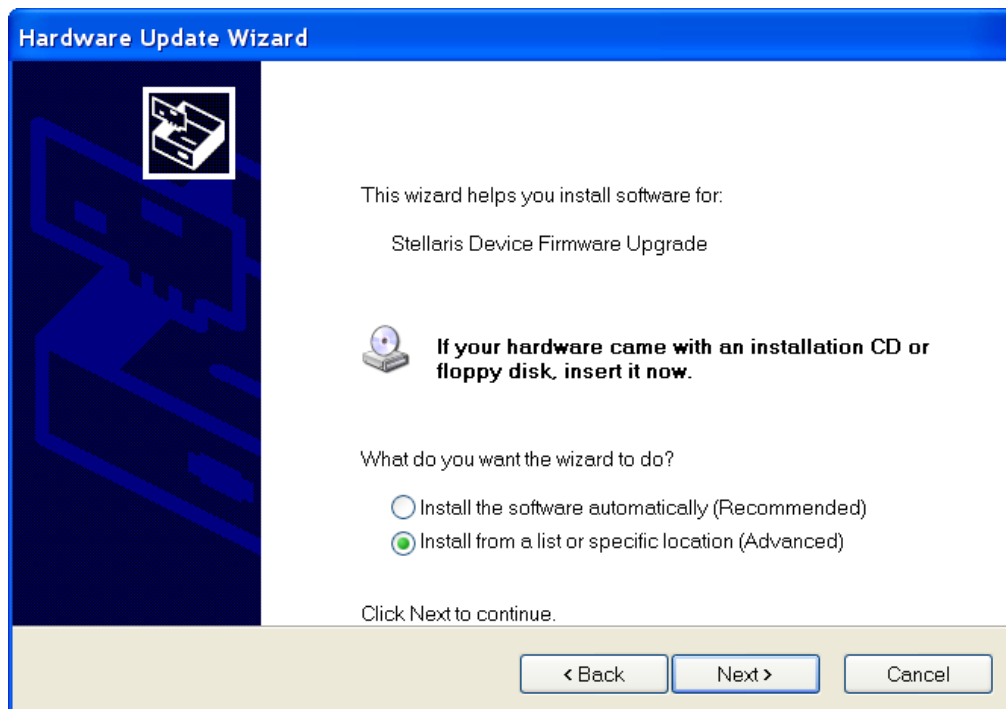
### Windows XP:



### Windows 7 (32 bit):

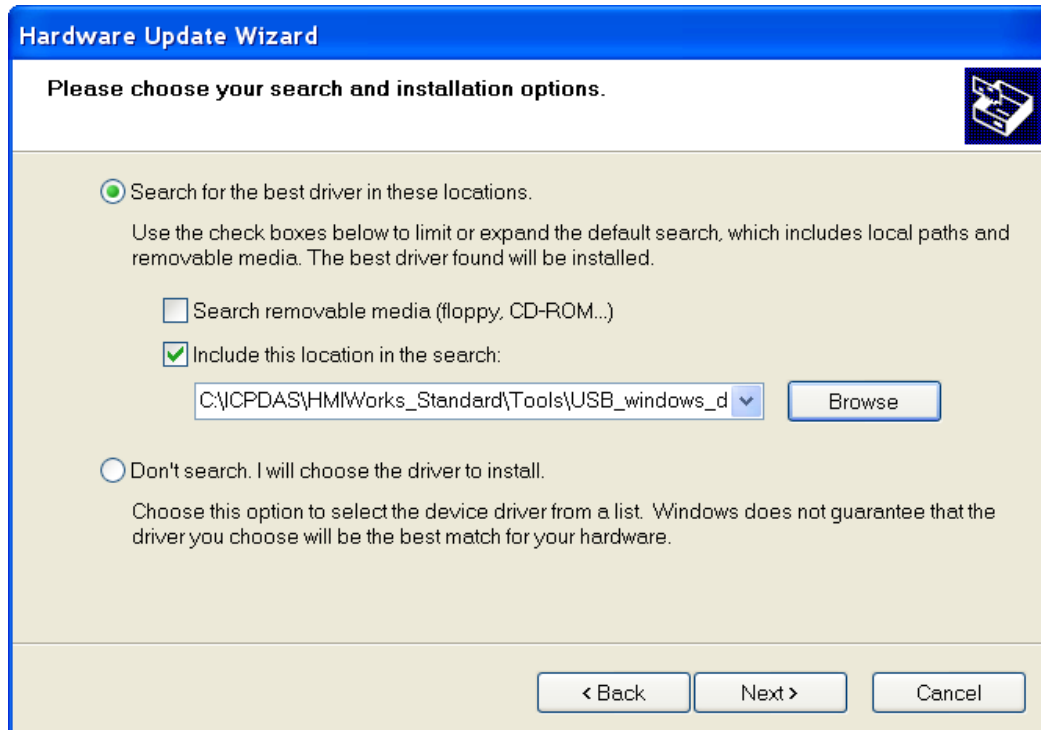


Step 3: Select “Install from a list.... (Advanced)”.

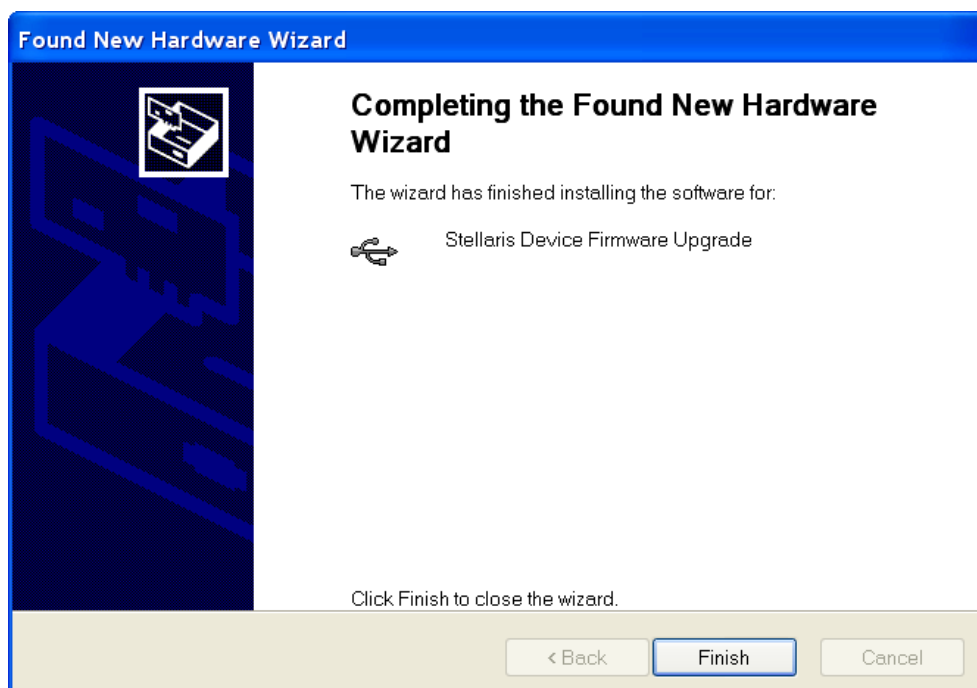


Step 4: Install the driver from the following location:

C:\ICPDAS\HMIWorks\_Standard\Tools\USB\_windows\_drivers

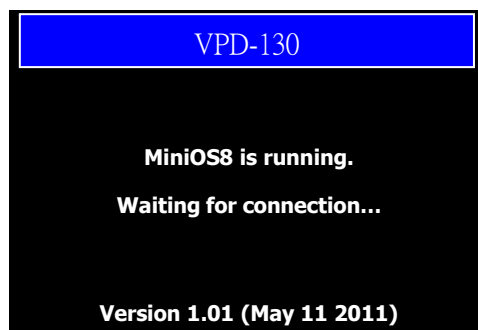


Step 5: After the driver is installed, you can see the following window.

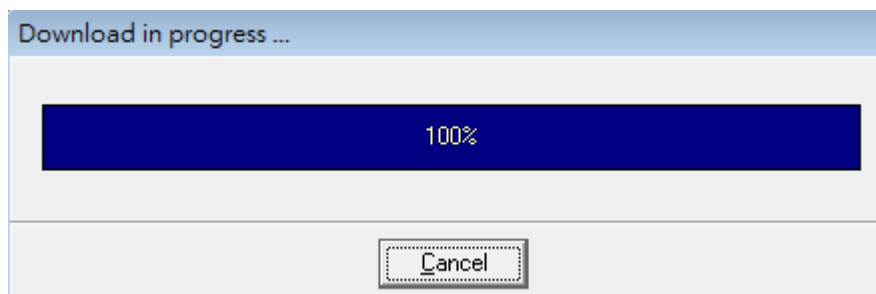
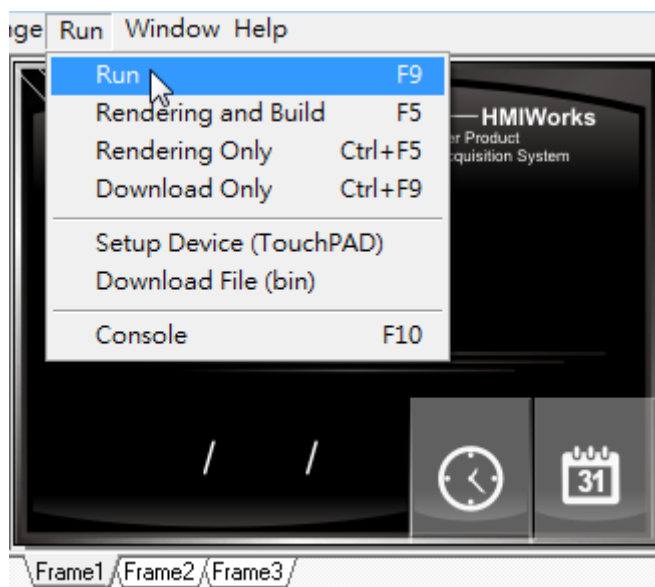


## Download Program via USB Port

Restart the TouchPAD after download the USB driver in the previous step and the screen will show as the picture below, then can begin the download process.



In the "HMIWorks", click the menu [Run] > [Run] to download program into the TouchPAD.



When the TouchPAD screen shows up "100%", please turn the Rotary Switch to mode "0" and restart, the TouchPAD will run the program in the "Run" mode.